24th ANNUAL STATISTICAL ISSUE

AUTOMOTIVE and Aviation INDUSTRIES

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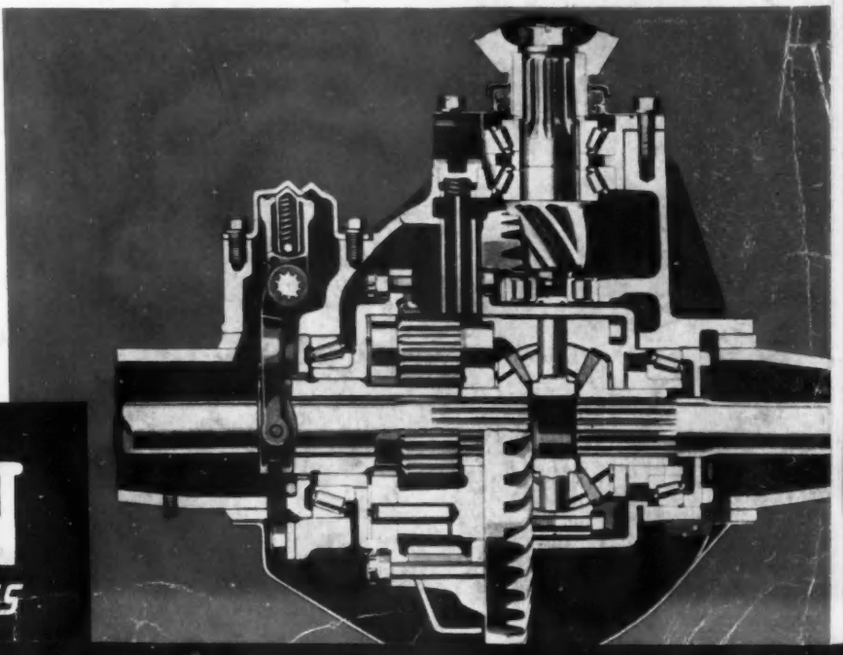

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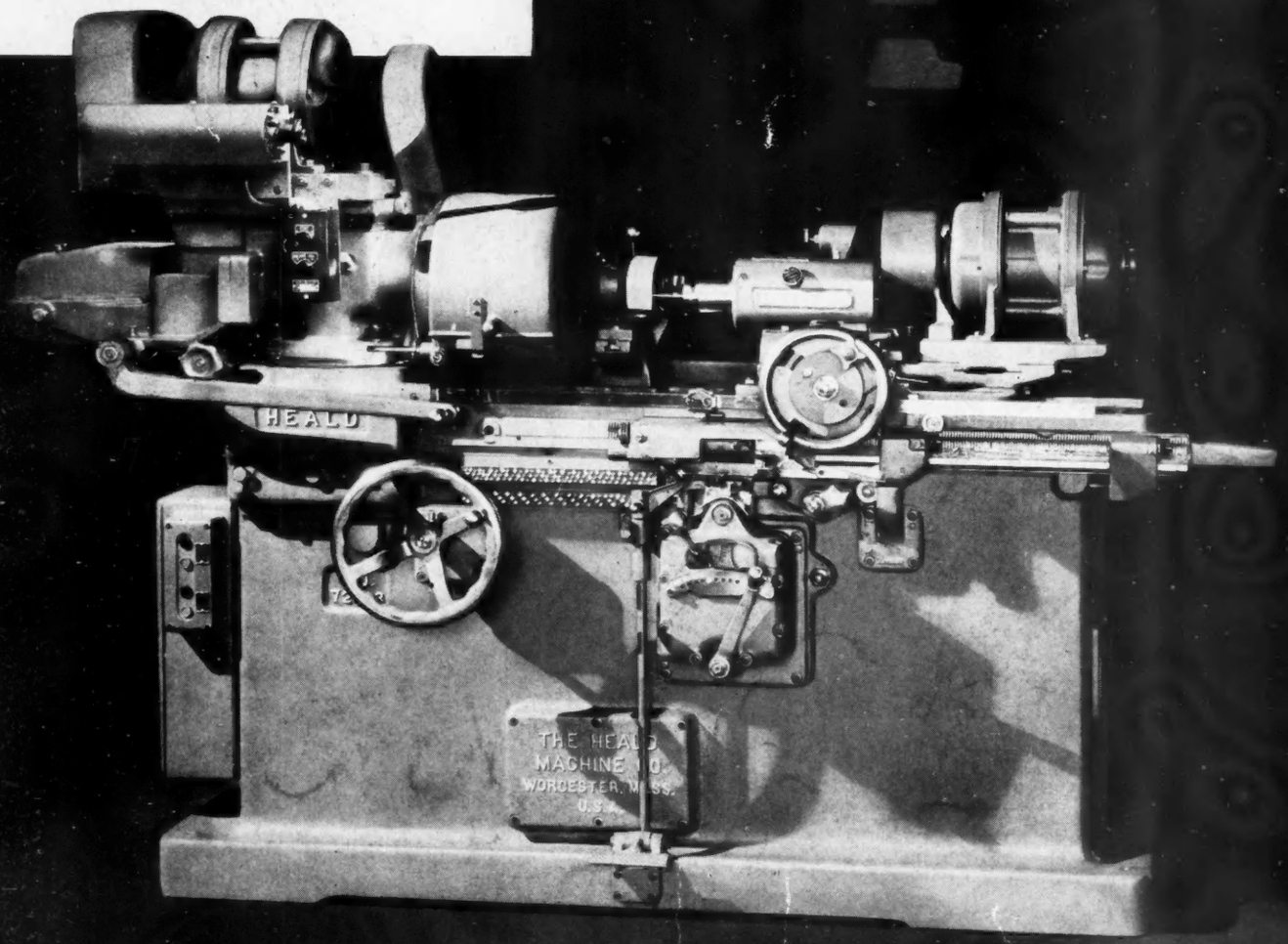

AUTOMOTIVE and Aviation INDUSTRIES

Published Semi-Monthly

Volume 86 Number 6

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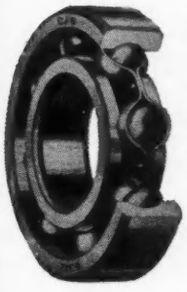
FOR YEARS



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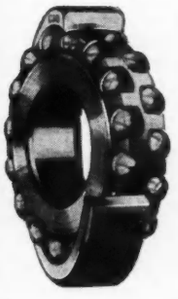

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IN THIS ISSUE . . . .

TWENTY-FOURTH

ANNUAL STATISTICAL ISSUE . . . . . .

AUTOMOTIVE and AVIATION INDUSTRIES

Volume 86 March 15, 1942 Number 6

AUTOMOTIVE INDUSTRIES

Reg. U. S. Pat. Off.

As the Record Unfolds—War and the Automotive Industry **45**

A chronological presentation of critical happenings in world history, from the invasion of Manchuria to the attack on Pearl Harbor, with which is interlaced a dated record portraying the constantly growing defense and war efforts of the automotive industry, from educational orders to all-out conversion, as American national thinking gradually progressed from isolationism to national defense to hemisphere defense to total-defense to all-out war.

Planes of the Army and Navy—Tanks and Army Motor Vehicles **50-59**

Types of military planes of the U. S. Army and Navy by official photographs of those brought into service or into announced production in 1941. Our light, medium and heavy tanks. Representative examples of the many types of motor vehicles used by our army, illustrated by official photographs of the Ordnance Department, Quartermaster Corps and Signal Corps.

The First Steps Toward Subcontracting **61**

What any manufacturer who wants war work should do. The four sources from which orders may be obtained. A directory of the locations and personnel of field officers and exhibits of the Contract Distribution Branch of the War Production Board.

America's 28 Million Passenger Cars; What, Where and How Old They Are **62-69**

Passenger cars in use in the United States, by States, by Makes, by Year of Manufacture. These are the cars on which the nation must now depend for its individual highway transportation.

Statistical Story of 10 Years' Accomplishments **70-82**

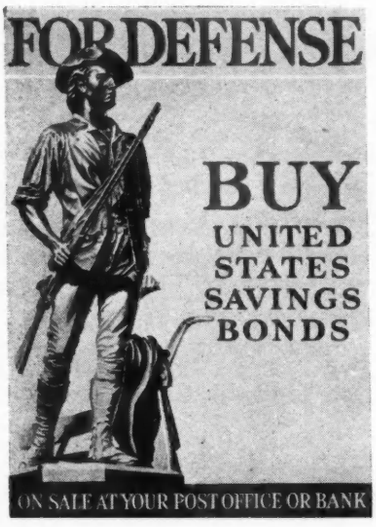
How the various makers of cars and trucks shared the market in new car sales by years, by months, in numbers of units and in dollar volume. Motor Vehicle registrations by states and by years. The numbers of cars and trucks used on our farms. What the State and Federal Governments collected from motor vehicle users by means of special taxes.

Specifications and More Specifications **87-119**

Sixteen years' progress in engine design, American aircraft engines, German military airplanes, American gasoline engines, Automotive diesel engines, American motor trucks, American bus chassis, American tractors, American passenger cars.

The Story of the Past Two Years **Beginning on 120**

High spots of the activity of the automotive industry as recorded from issue to issue on the pages of Automotive and Aviation Industries.



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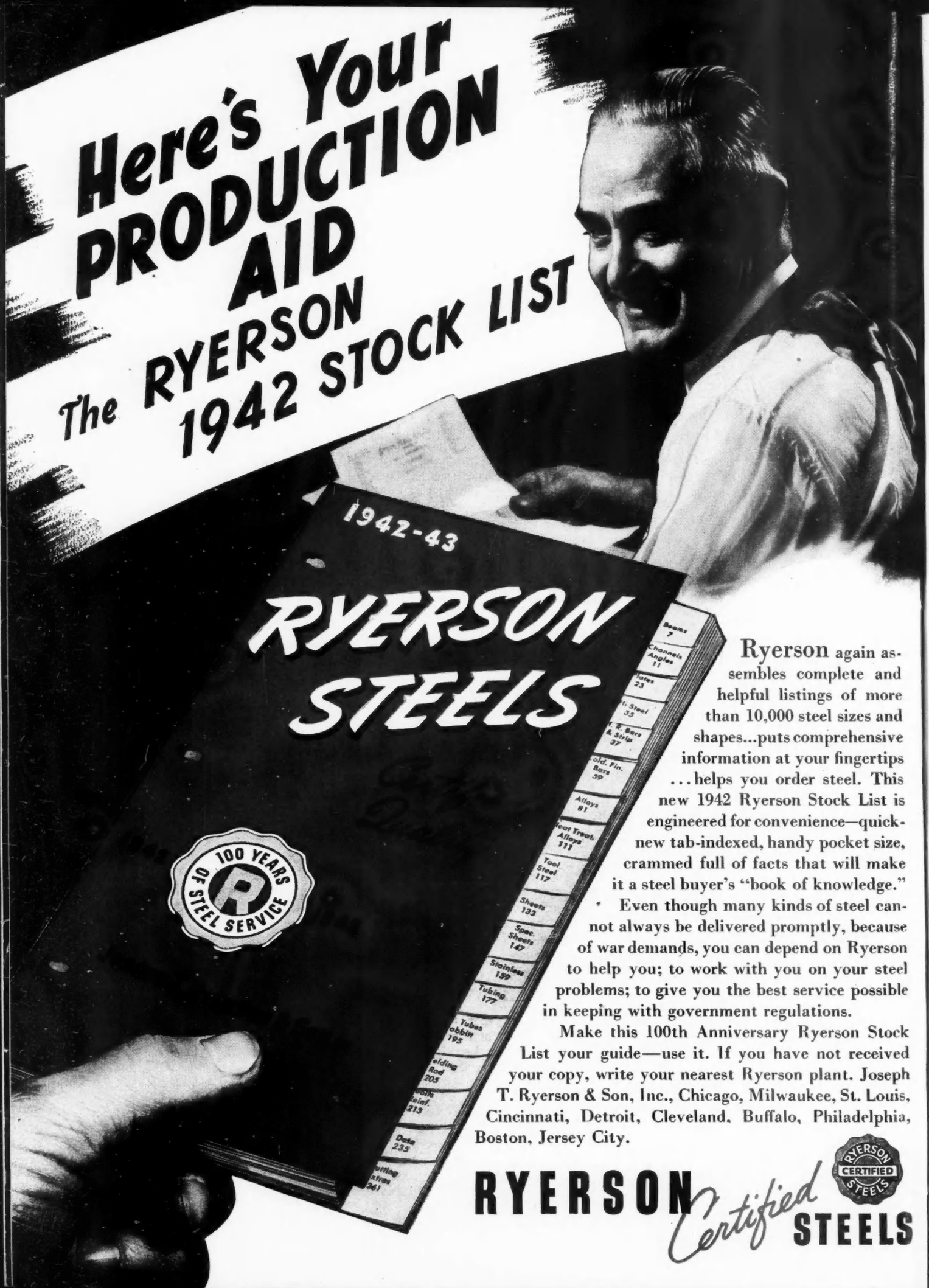
The RYERSON 1942 STOCK LIST



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From Vol. I, No. 1, of THE HORSELESS AGE, November, 1895.

AUTOMOTIVE and AVIATION INDUSTRIES

Published on the 1st and 15th of the month

Vol. 86, No. 6
March 15, 1942

As the Record Unfolds

War and the Automotive Industry

Munich to Poland

1938

Sept. 30—MUNICH. Czechoslovakia partitioned. Britain and Germany sign anti-war pact.
Oct. 1—Germans enter Czechoslovakia.
Dec. 6—France and Germany sign anti-war pact.

1939

Jan. 5—President's $9-billion budget message includes $2.266 billions for recovery and relief, $1.39 billions for national defense. Additional $552 millions asked for defense 7 days later.
Jan. 30—Hitler announces Germany's next objective is return of her colonies and repartition of world's riches in proportion to numbers and worth.
Feb. 3—President defines his foreign policy as unchanged and unchanging—against entangling alliances and sympathetic to cause of world peace.
Feb. 23—Island of Guam eliminated by Congress from naval defense construction program.
Feb. 25—Spanish Civil War ends.
Apr. 3—National Defense Act increases Army airplanes to 6,000, sets $23,750,000 for improvement and defense of Panama Canal, increases educational orders for munitions and war accessories from $2 millions annually to $34 millions for next three years to be followed by $2 millions annually for four years.
Apr. 7—Italy invades Albania.
June 7—Strategic War Materials Act, ordering War, Navy and Interior Secretaries to determine what these materials are; $100 millions appropriated to be spent during five fiscal years 1939-1943.
June 30—U. S. Federal debt $40.4 billions.
Aug. 24—RUSSO-GERMAN PACT.
Sept. 1—POLAND invaded by Germany.

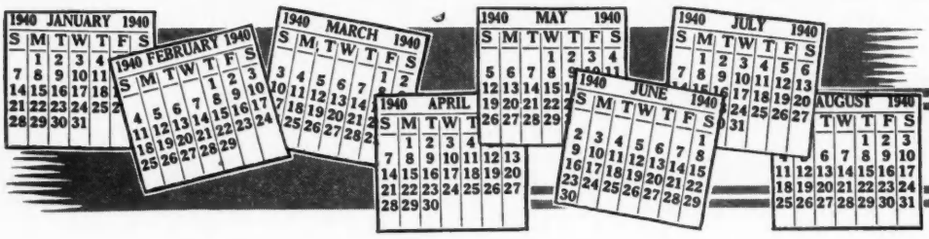
Before Munich

1931—MANCHURIA invaded by Japan.
1933—Italy, France, Germany and Britain sign 10-year peace pact.
1934—U. S. grants Philippine independence, effective 1945.
1935—ETHIOPIA invaded by Italy.
1936—RHINELAND reoccupied by Germany.
—SPANISH CIVIL WAR begins.
1937—CHINA invaded by Japan.
1938—Japan refuses information
Jan. regarding her warship plans to Great Britain, France and United States.
Mar. —AUSTRIA annexed by Germany.
June —Congress appropriates $3.75 billions for work relief, public works, housing; $1.09 billions for Navy expansion.
—United States, France and Great Britain increase size limit of battleships to 45,000 tons.
—U. S. Federal debt $37.1 billions.

Second World War Begins

Sept. 3—Britain and France declare war on Germany.
Sept. 3—*"This nation will remain a neutral . . . in the days to come our neutrality can be made a true neutrality"*—President Roosevelt.
Sept. 5—President invokes Neutrality Act of 1937, ordering embargo on arms to belligerents.
Sept. 13—President calls special session of Congress for repealing arms embargo and otherwise revising Neutrality Act.
Sept. 16—Russia invades Poland.
Sept. 21—President's message to Congress advocating repeal of arms embargo, *"To those who say that this program would involve a step toward war on our part, I reply that it offers far greater safeguards than we now possess or have ever possessed, to protect lives and property from danger. . . . There lies the road to peace! . . . Our acts must be guided by one single hard-headed fact—keeping America out of this war."*
Sept. 29—Russia and Germany divide Poland.
Nov. 4—"Cash and Carry" amendment to Neutrality Act signed, repealing arms embargo.
Nov. 16—United States Government officials rule that American warplanes can be wheeled, pushed or pulled into Canada, but not flown across border under their own power.
Nov. 30—FINLAND invaded by Russia.
Dec. 31—Automobile iudustry's defense orders total $20 millions.

(Turn to next page, please)



AS THE

1940

JANUARY

1st—Tariff Commission pointing to decline in U. S. crude rubber stocks, issues report saying if shortage of rubber occurs this country undoubtedly can use much greater quantities of reclaimed rubber; production of substitutes could be expanded but probably from one to four years would be required before the industries could produce even the minimum requirements of the United States.

15th—*"Our own domestic situation, to say nothing of the world situation, demands that we put our house [the nation generally] in order."*—Alfred P. Sloan, Jr.

26th—United States trade treaty with Japan expires; trade relations continue on day to day basis.

31st—Steel mill output falls to 77 per cent of capacity.

FEBRUARY, 1940

15th—Machine tool manufacturers voluntarily agree to give priority to deliveries to American manufacturers of airplanes and airplane engines.

18th—Now working on educational and other defense contracts, automobile companies begin discharging aliens to meet Government order.

26th—Steel production drops to 65.9 per cent.

26th—The War and Navy's interdepartmental committee on strategic materials, the agency concerned with the $100 millions strategic and critical material purchasing program advises the President that now is the time to buy. The President's suggestion to use $15 millions of the appropriation for the next fiscal year was pared down by the House Appropriations Committee to $12.5 millions, but of that amount only $5 millions was made immediately available by the Senate.

MARCH, 1940

12th—Finland surrenders to Russia.

24th—U. S. Government authorizes transfer to Allies of several hundred planes nearing completion for Army.

25th—Steel production drops to 60.7 per cent.

30th—U. S. War Department sends letters to 175 manufacturers of airplanes and parts, granting permission to defer delivery on planes ordered by the Army provided they assured the Government of a superior ship for the Army later.

APRIL, 1940

9th—Norway and Denmark invaded by Germany.

19th—Japanese and U. S. separately state desire for status quo in Pacific.

MAY, 1940

4th—President says experience of Allies, thus far in war, indicate necessity for many changes in American defense weapons.

10th—Germany invades Netherlands, Belgium and Luxemburg.

11th—Winston Churchill becomes British Prime Minister, succeeding Neville Chamberlain.

16th—President asks for appropriations and authorizations totaling $1.182 billion; urges plant expansion in aircraft industry to raise production to 50,000 planes a year. This is first indication that automobile industry will have to play a major role in defense program.

26th—In fireside chat President urges nation to remain calm and promises retention of New Deal social gains. *"We have carried on an offensive on a broad front against social and economic inequalities, against abuses which had made our society weak. That offensive must not be broken down by the pincers movement of those who would use the present needs of physical military defenses to destroy it."*

28th—Belgium surrenders.

28th—President appoints National Defense Commission, with Edward R. Stettinius, William S. Knudsen, Sidney Hillman, Ralph Budd, Chester C. Davis, Leon Henderson and Miss Harriet Elliott.

28th—President at press conference said there was no reason for the country to become "discomboomerated" in apprehension of what may come to pass. . . . It was the intention not to upset the normal trends of American life any more than necessary. Mr. Roosevelt underscored this observation that the present defense program was not to be compared with that of 1917, when the nation was attempting to raise an army of four million men. There was no thought in government today to revive the draft system, whether of men or money. . . . What the Administration was undertaking now was nothing like a complete national mobilization, the President explained.—N. Y. *Herald Tribune.*

28th—Administrative leaders prepare plans to oppose new taxes and to increase Federal debt limit by $3 billion.

29th-31st—DUNKIRK.

JUNE, 1940

10th—Italy declares war on France and Britain.

10th—Norway surrenders.

12th—President Macauley, of the Automobile Manufacturers Association, points out that the entire armament program now being formulated does not much exceed one normal year's output of the automotive industries.

18th—U. S. warns Axis powers to keep hands off British, French and Dutch possessions in Western Hemisphere.

20th—President appoints new Army and Navy Secretaries; Henry L. Stimson and Frank Knox.

22nd—FRANCE FALLS.

22nd—Congress passes National Defense Tax Bill to yield $994,300,000 and raises debt limit from $45 billion to $49 billion.

JULY, 1940

8th—UAW-CIO announces drive to organize the country's aircraft industry.

10th—President asks Congress for $4.848 billions additional for defense preparation. *"That we are opposed to war is known not only to every American, but to every Government in the world. We will not use our arms in a war of aggression; we will not send our men to take part in Europe's wars."*

14th—*The Iron Age* survey of industry generally reveals lack of orders in automotive industry is major bottleneck of defense production.

15th—Donald M. Nelson, Sears Roebuck executive, named by the President to be Purchasing Coordinator, under National Defense Advisory Commission.

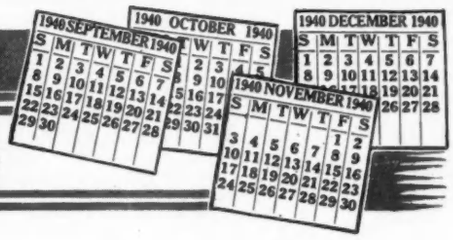
17th—Britain closes Burma Road under pressure from Japan.

20th—President signs Two-Ocean Navy Bill. (Secretary of Navy Knox six months later told the Senate Foreign Relations Committee it will take five to six years to complete the Navy's national defense preparations.)

31st—Export of aviation gasoline to countries outside Western Hemisphere banned by U. S.

31st—*"In Germany, Hitler had to deprive his people of bread and butter in order to make guns. Fortunately in this country, we can have both. We can provide all the guns and ammunition which this country needs for complete defense without depriving the people in this country of the bread and butter which they most need."*—Sidney Hillman.

RECORD UNFOLDS



AUGUST, 1940

1st—Eighty-eight types of tools ordered by Japan in U. S. held up under Presidential ruling restricting export of machine tools. Only 15 released for shipment.

5th—Organization of Ford Motor Co. employes and the rapidly expanding aviation industry were cited by President Roy J. Thomas, before the fifth annual convention, held in St. Louis, as the major 1941 goal of UAW-CIO.

5th—*"Aircraft orders are not being placed with automobile concerns because War Department plans, calling for conversion of plants for aircraft production, are based on wartime conditions. Until such conditions arise, the defense commission takes the view that expansion of existing aircraft facilities and the construction of new aircraft plants offer the preferred route rather than disrupt peacetime schedules of automobile plants."*—William S. Knudsen.

5th—Willkie calls for single head for Defense Program.

SEPTEMBER, 1940

1st—Government orders to Michigan plants total an estimated $304,723,347.

1st—*"The union will insist that all skilled mechanics available be employed before breaking in new men; that seniority be protected and that established standards of pay and hours be maintained."* — Walter Reuther, UAW-CIO.

3rd—President announces transfer of 50 American destroyers to Britain for 99-year leases on island air bases in Western Hemisphere.

6th—Congress passes "total-defense" bill of $5.246 billions.

14th—Italy invades Egypt.

17th—*"The emphasis at this time should primarily be on not interfering with the expansion of consumers' income and consumers' expenditures."*—Dr. E. A. Goldenweiser, Director of Research, Federal Reserve Board.

19th—Donald M. Nelson, National Defense Coordinator of Purchases, says that the broadest problem involved in coordinating Government purchasing activities relates to the fitting of military defense requirements to productive capacity with a minimum of interference with normal business.

20th—*"The commission deemed it prudent to superimpose the defense load on the regular business of the country where this does not result in a loss of speed" . . .*—William S. Knudsen.

22d—FRENCH INDO-CHINA. Japan and France reach agreement giving Japan air bases and right to maintain troops in Indo-China.

26th—Ban placed on shipment of iron and steel scrap except to Britain and Latin America.

27th—TRIPARTITE PACT. Japan joins with Rome-Berlin Axis.

—*"The reported agreement of alliance does not, in the view of the Government of United States, substantially alter a situation that has existed for years."*—Secretary of State Hull.

—U. S. Dept. of Commerce cites pact as a threat to America's rubber supply.

OCTOBER, 1940

1st—Sidney Hillman, labor representative on the NDAC, states that defense materials contracts will not be awarded to companies violating such labor laws as Walsh-Healey Act and NLRB Act.

1st—National Defense activity in Michigan accelerated during September as construction was begun on the Chrysler tank arsenal and the Ford aircraft engine plant, and the contract was closed with the Packard Motor Car Company for the building of Rolls-Royce Merlin airplane engines.

4th—*"If the United States refuses to understand the real intention of Japan, Germany and Italy, and persists in challenging those powers, in belief the pact is a hostile action, there will be no other course open than to go to war."*—Japan's Premier Konoye.

—*"I fling this challenge to America. If she in her contentment is going to stick blindly and stubbornly to the status quo in the Pacific, then we will fight America.*—Japan's Foreign Minister Matsuoka.

8th—U. S. State Dept. advises American citizens to leave Far East.

8th—*"It is a tribute to this nation's productive ability that the automobile companies now joined in the mass production of armaments for defense, at the same time are providing improved vehicles to meet the needs of our population.*

"The expectation of a high level of productivity with which the automobile industry starts its 1941 season is gratifying . . ."—Letter by President Roosevelt to Alvan Macauley, president of Automobile Manufacturers Association.

12th—President announces U. S. policy to be total defense of this hemisphere and adjacent oceans, and continued war aid to Britain.

12th—*"The makers of automobiles and trucks . . . make no reservations on the defense score—that job has priority in this emergency period, and no productive energies that can be applied to that work can or will be withheld."*—Alvan Macauley, President of AMA.

15th—In the first specific proposal of its kind, Government officials ask the automobile industry to aid in construction of bombers. Industry leaders immediately pledge to subordinate new models to defense.

17th—Britain reopens Burma Road to transport war materials to China.

23d—*"Today we are at a new high . . . There is a lot of power in reserve . . . unless the guesstimators signs of the zodiac fail . . . this country will get defense, reemployment and a higher standard of living."*—Leon Henderson.

24th—40-hour work week becomes effective. Prior limitation was 42 hr. per week back to Oct. 24, 1939, before which the 44 hr. week was in effect. (On Feb. 27, 1942, the House rejected the Smith proposal to suspend for the duration of the war the 17 Federal statutes, chief of which is the Wages and Hours Law, prescribing the maximum 40-hour work week and extra pay for overtime. Strong opposition by Administration and labor leaders resulted in defeat of the Smith proposal, which was offered as an amendment to the Second War Powers Bill.)

25th—Automobile industry leaders receive more details on $500-million program to call for parts for bombers. No order expected until spring. Industry leaders set up committee for air defense project, with Alvan Macauley as chairman. They are advised that it may be possible to superimpose this huge program without disturbing normal car output.

27th—Greece invaded by Italy.

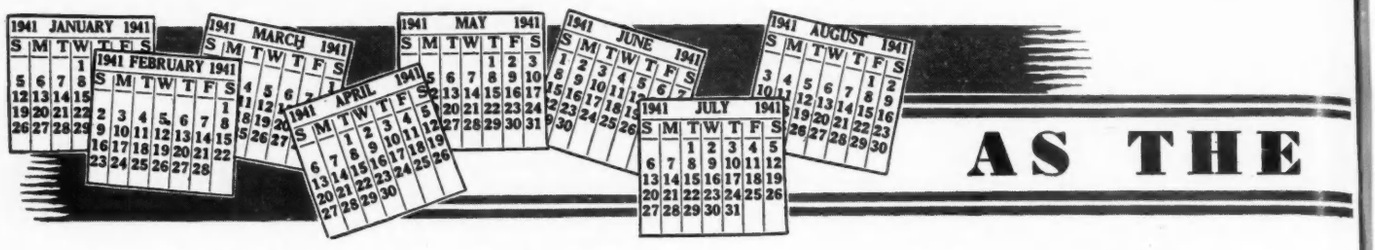
30th—*"And while I am talking to you mothers and fathers, I give you one more assurance. I have said this before, but I shall say it again and again and again: Your boys . . . are going into training to form a force so strong that, by its very existence, it will keep the threat of war far away from our shores. The purpose of our defense is defense."*—President Roosevelt in campaign speech at Boston.

NOVEMBER, 1940

5th—President Roosevelt elected for a third term.

6th—Ford Motor Company awarded formally a contract for the manu-

(*Continued on page* 48)



AS THE

facture of Pratt & Whitney double Wasp radial aircraft engines. The plant for this job on company's initiative is now under construction, and a 60-day course to train youths in aircraft production methods has been started.

7th—Secretary Morgenthau announces Government's intention to raise debt limit to $60 billion or $65 billion, and remove exemption privileges on new Government issues.

8th—President Roosevelt tells country that one half of America's defense output will go to Britain.

19th—Machine tool activity in U. S. now 100 per cent over 1939 rate.

22d—Congress members make speeches criticizing the tie-up of defense production by strikes.

27th—President Roosevelt allocates $50 million to develop air and naval bases leased from Britain.

DECEMBER, 1940—

1st—CIO asks U. S. to withhold defense orders from Ford Motor Company, claiming violation of the National Labor Relations Act.

17th—President Roosevelt outlines Lend-Lease Plan.

20th—President Roosevelt set up the office of Production Management to speed all material aid "short of war" to Great Britain and the democracies.

23d—Reuther Plan for utilization of the automobile industry's excess capacity for building 500 warplanes a day (182,500 planes a year, 57,500 more than the goal set for 1943 by President Roosevelt for both aviation and automotive industries. Ed.) within six months submitted to President Roosevelt who referred it to the National Defense Advisory Commission.

—"The nub—and many thought the prevailing purpose—of the Reuther plan—was to give to labor an authoritative voice in the management activity and policy of industry during the war . . . Whether the scheme envisaged an industrial condition that can be called 'socialized' or 'communal' or whatever, it provided for fundamental change . . . That is probably what impelled Washington defense officials from the President down to become preoccupied with the technical faults of the Reuther Plan and its lack of blueprints."—Arthur Krock in New York Times (1/9/42).

—"Obviously it was not a plan at all. Reuther simply looked at the automobile industry, saw that it was running at less than capacity, and jumped to the conclusion, for which he offered no evidence in support, that by the appointment of a government - labor - management board the automobile industry could continue to produce 4,000,000 cars a year and at the same time turn out 500 planes a day."—Ralph Robey in Newsweek (1/26/42).

—"It should be pointed out for the record that the Reuther Plan made no objection . . . to 'business as usual.' In fact the plan was drawn upon continued operation of the automobile industry at 50 per cent capacity, and pooling of additional capacity for plane production."—Robert L. Perry in Detroit Free Press (1/18/42).

29th—*"Our national policy is not directed toward war. Its sole purpose is to keep war away from our country and our people."*—The President in fireside chat.

30th—Telegram to the President: *"The automotive industry accepts without qualification your declaration of the urgency of defense production. It is putting into the effort every facility that can be usefully employed, and will respond in full measure to every call for service that comes to it from our government's Office of Production Management, regardless of sacrifices that may be involved."*—Alvan Macauley, Pres., Automobile Manufacturers Association.

JANUARY 1941

1st—Contracts held throughout the automobile industry for various types of defense equipment now total $1,076,082,000, about 10 per cent of entire defense contracts other than for ships. Deliveries of General Motors and Chrysler alone to end of 1940 amounted to $89,000,000.

3d—Total defense commitments of Sixty-ninth Congress ending this date amounted to $17,692,227,930, including direct appropriations and contract authorizations of $8,792,145,145 to the Army, $3,537,138,137 to the Navy and $4,586,000,000 for the Two-Ocean Navy.

5th—General George C. Marshall asks for appropriations for new airplane plants, pointing out that the use of available facilities for such manufacturing is unsatisfactory.

9th—*"I am opposed to a tax policy which restricts general consumption as long as unused capacity is available and as long as idle labor can be employed."* — President Roosevelt.

10th—Lend-Lease Bill presented to Congress by the President.

10th—Priorities committee for steel industry set up with Defense Commissioner Stettinius as chairman.

15th—The "Big Three," Ford, General Motors and Chrysler to be made responsible for production of fuselage parts and subassemblies in new "bomber program" to centralize responsibility and concentrate management, developed by the Automotive Committee for Air Defense and the National Defense Advisory Commission in conjunction with the War Department. Ford will be responsible for the Consolidated B-24, General Motors, the North American B-25, and Chrysler, the Martin B-26.

16th—Automobile Show for 1941 (lately held in October) is called off.

20th—National Association of Manufacturers begins survey of industry to determine its capacity to meet any emergency.

21st—U. S. lifts embargo on exports of airplanes to Russia.

22d—ALLIS-CHALMERS STRIKE starts, seriously delaying defense production in hundreds of other plants throughout the nation.

30th—Ford Motor Co. loses $10 million Government order for Army trucks despite lowest bid, for refusing to agree to labor clause.

FEBRUARY, 1941

1st—*"I want to emphasize the point that nothing can be gained . . . should we curtail the production of things incident to our normal needs for the sake of accelerating the production of materials incident to defense until such production is being delayed by peace-time needs. There is little now with which to accelerate. Watchful waiting would be the result. Millions, directly and indirectly, would be thrown out of work temporarily. The forces within the economy would become unstabilized . . . It seems clear, therefore, that there is not in sight the absorption of our full productive effort in terms of the maximum capacity of men, materials and capital."*—Alfred P. Sloan, Jr., General Motors Chairman.

1st—With employment near 1937 levels, due to national defense work, an outbreak of strikes and strike threats swept Michigan factories in January, necessitating the presence of Federal conciliators in the state, and a ruling by the State Labor Mediation Board that a 30-day notice must be filed prior to calling a strike, rather than the usual 5-day notice. Because strikes in plants doing defense work were not "in the public interest," the 30-day clause was invoked.

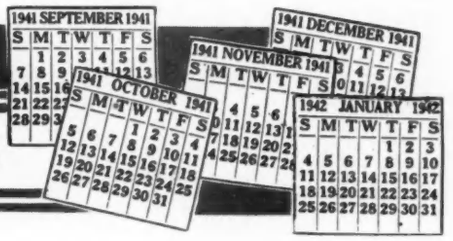
3d—C. W. Avery, Murray Corp. president, declares Murray has been ready to manufacture bomber parts for the past 6 months, but each time work is ready to start the Government changes its plans or redrafts designs.

6th—Automotive industry reveals voluntary saving of 500 million pounds of vital metals.

8th—House passes Lend-Lease Bill.

10th—House passes bill raising debt

RECORD UNFOLDS



limit to $65 billions. $245 million voted to expand naval bases.

10th—Truman of Missouri on floor of Senate attacks concentration of educational orders in hands of three large automobile companies, saying, *"I think the 'education order' program ought to be gone into thoroughly. If it is necessary to give Henry Ford, Chrysler and General Motors millions of dollars for educational purposes for mass production, then we certainly are out on a limb. I understand that they have been given $11,000,000 apiece for educational purposes. . . . They are merely a gift."*

24th—OPM invokes mandatory, industry-wide priorities on machine tools and aluminum.

28th—President Roosevelt reports plenty of steel available for defense, lend-lease and civilian needs in 1941 and 1942.

MARCH, 1941

7th—Lend-Lease Bill is passed by U. S. Senate. Signed four days later by President and a substantial list of war materials is released immediately to Britain and Greece.

7th—OPM places nickel and neoprene under priority ratings.

12th—President asks Congress for $7 billion Lend-Lease fund (passed by Congress one week later).

15th—Contracts totaling $24,694,284 have been let by the War Department for the construction of three final assembly plants in the Mid-West where U. S. bombers, for which the automotive industry will furnish the airframe sub-assemblies, will be produced.

17th—President Roosevelt signs fourth supplemental defense appropriation bill for $1.533 billion.

24th—More than 1,000,000 man-days of work have been lost to defense projects since January 1 as a result of strikes and jurisdictional disputes, War Department announces.

31st—Automobile industry's defense orders now total $1,335,400,000.

APRIL, 1941

2nd—FORD STRIKE BEGINS, halting work on $155,000,000 in defense orders.

7th—Allis-Chalmers 76-day strike ends.

7th—Fifth supplemental defense bill appropriating $4.390 billion signed by the President.

11th—President creates Office of Price Administration and Civilian Supply (OPACS), headed by Leon Henderson.

11th—Ford strike settled.

14th—RUSSO-JAP PEACE PACT. Japan now free to strike in Pacific.

15th—OPM has established a priorities critical list containing over 200 primary military items that are being assigned preference ratings automatically in orders by contracting officers of the Army and Navy. The list is subject to monthly revision.

17th—W. S. Knudsen, OPM Director-General, announces that the automobile industry willingly accepted an 80 per cent production quota of motor vehicles for the model year beginning Aug. 1. G.M. discards plans for new models for 1943 season. Others follow.

23rd—GREECE SURRENDERS.

MAY, 1941

1st—OPM places 16 defense metals under inventory control system.

2nd—President Roosevelt calls for production on 24-hour day, seven days a week, basis.

6th—FRENCH-INDO CHINA. Japan and France sign pact for economic collaboration between Japan and Indo-China.

7th—President Roosevelt signs $3½ billion naval appropriation bill providing for two-ocean navy.

7th—*"We are in danger of setting our sights too low on what we can produce for civilian life, without the slightest interference with the needs for defense. . . . I cannot see why the United States—using only 20 per cent of the national income for defense purposes even in the fiscal year 1942—must pull in its belt on thousands of items unrelated to its defense program. We should encourage the increased use of these non-competing resources to satisfy actual and latent consumer demand."*—Leon Henderson, OPACS Administrator.

13th—Strikes and jurisdictional disputes to date, from Jan. 1, have caused loss of 1,675,773 man-days of work on needed defense projects, is War Department's estimate.

27th—President Roosevelt proclaims UNLIMITED EMERGENCY and asks Congress for $3.319 billion, mainly for airplanes. *"Whereas on the twenty-seventh day of May, 1941, a Presidential Proclamation was issued declaring an unlimited national emergency and calling upon all citizens in production for defense to give precedence to the needs of the nation, to the end that a system of government which makes private enterprise possible may survive."*

28th—President declares steel production is insufficient for both civilian and defense needs.

29th—OPM places steel under priority control.

30th—GERMANY CONQUERS CRETE.

JUNE, 1941

9th—Army takes over the warplane factory of North American Aviation Company where an unauthorized, five-day strike had tied up production on $200,000,000 military orders.

12th—OPACS asks automobile manufacturers to rescind price advances.

15th—One out of seven workers in the United States now are directly or indirectly supported by the automobile industry, according to a report of the National Automobile Dealers Association, setting a figure at 6,500,000, embracing manufacturing, distribution and services.

20th—Ford signs union shop and check-off agreement with UAW-CIO.

21st—GERMANY DECLARES WAR ON RUSSIA.

24th—The United States offers all aid possible to Russia.

29th—House Military Committee declares a series of major failures and delays has left U. S. seriously lacking in strategic materials. Principal cause laid to absence of responsible head with authority and power to act.

30th—President signs record Army appropriation bill of $10,384,821,624; also signs legislation extending his power to devalue the dollar and continuing stabilization fund.

JULY, 1941

1st—The automobile industry's defense orders from Sept. 1, 1939, to date total $2,600,000,000.

7th—U. S. occupies Iceland.

22nd—President at press conference says that the Administration does not intend to cut off automobile production one day and then not substitute defense work until several months later.

30th—President asks for broad statutory powers to establish ceilings on prices and rents to avert inflation.

31st—President creates Economic Defense Board, headed by Vice-President Wallace.

AUGUST, 1941

1st—U. S. stops further shipments of aviation gasoline to Japan.

1st—In his second quarterly report to the stockholders, Alfred P. Sloan, Jr., General Motors chairman, points to the limitations of the industry's mass production methods and their inflexibility in applying

(*Continued on page* 122)

UNITED STATES

The photographs shown on these pages represent examples of the most recent types of planes used by the U. S. Army Air Forces, and are illustrative of those brought into service or into announced production during 1941. The caption below each photograph gives the chief characteristics of the type illustrated. Elsewhere in this issue appear specifications of standard American aircraft engines.

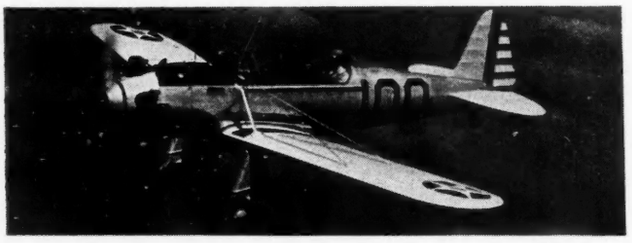
CREDIT NOTE:—The halftone illustrations of Army planes, except Ryan PT-22, Curtiss P-40F and Boeing B-17E are made from official photographs of the U. S. Army Air Corps and credit is hereby gratefully acknowledged. The tabulation showing make and model designation of army airplanes was compiled by the Aeronautical Chamber of Commerce of America.

TABLE SHOWING

Type and Make	Model
BOMBERS (4-engine)	
Boeing	B-17
Consolidated	B-24
Douglas	B-19
BOMBERS (2-engine)	
Douglas	B-18, A-20
Martin	B-26
North American	B-25
BOMBERS (1-engine)	
Douglas (Scout-dive)	A-24
Northrop (Attack)	A-17
FIGHTERS (2-engine)	
Bell	YFM
Lockheed	P-38

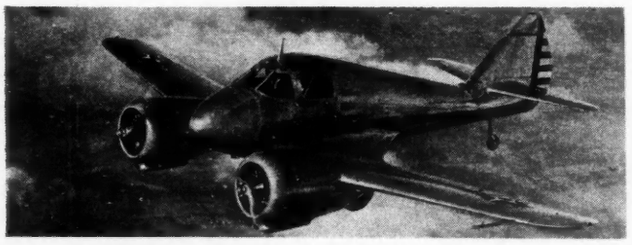
PRIMARY TRAINER. High wing monoplane; fabric covered, steel tube fuselage and wood wing frames; 4-cyl. horizontally opposed engine; fixed blade propeller; fixed landing gear. (Piper L-59).

LIAISON PLANE. High wing monoplane with steel tubing, fabric covered fuselage; radial air-cooled 9-cyl. engine; controllable pitch propeller; fixed landing gear. (Stinson L-49).



PRIMARY TRAINER. Low wing monoplane with all metal fuselage, fabric covered wings; radial air-cooled 5-cyl. engine; fixed pitch propeller; fixed landing gear. (Ryan PT-22).

LIAISON PLANE. High wing monoplane with all metal fuselage and wings; radial air-cooled 9-cyl. engine; controllable pitch propeller; fixed landing gear. (Ryan L-51).



ADVANCED TRAINER. Low wing all metal monoplane with enclosed cabin. Two radial air-cooled 9-cyl. engines; constant speed controllable pitch propellers; retractable landing gear. (Curtiss AT-9).

BASIC COMBAT PLANE. Low wing monoplane with aluminum alloy fuselage and wings; radial air-cooled 14-cyl. engine; constant speed propeller; retractable landing gear. (Vultee).

ARMY AIRPLANES

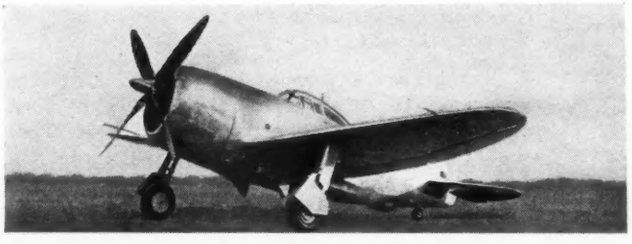
ARMY AIRPLANES IN SERVICE OR IN ANNOUNCED PRODUCTION

Type and Make	Model
FIGHTERS (1-engine)	
Bell	P-39
Curtiss	P-36, P-40
Ryan	PT-16, PT-20, PT-21, PT-22
Stearman	PT-13-17-18
TRAINERS—Basic (1-engine)	
North American	BT-9, BT-14
Vultee	BT-13, BT-15
TRAINERS—Advanced (1-engine)	
North American	AT-6
TRAINERS—Advanced (2-engine)	
Beech	AT-7, AT-10, AT-11
Cessna	AT-8, AT-17
Curtiss	AT-9

Type and Make	Model
TRANSPORT (1-engine)	
Fairchild	C-61
TRANSPORT & CARGO (2-engine)	
Beech	C-45
Curtiss	C-46, C-55
Douglas	C-33, C-39, C-47, C-48, C-49
Lockheed	C-56, C-57
North American	P-51
Republic	P-35, P-43, P-47
OBSERVATION (1-engine)	
Douglas (2-engine)	O-46
Aeronca	L-58
Bellanca	L-50
North American	O-47

Type and Make	Model
LIAISON (1-engine)	
Curtiss	L-52
Piper	L-59
Ryan	L-51
Taylorcraft	L-57
Stinson	L-49
RECONNAISSANCE (2-engine)	
Beech	F-2
TRAINER—Primary (1-engine)	
Fairchild	PT-19A

The planes included in the tabulation at the top of these pages are either in service or in announced production. Model letter designations have been eliminated for simplification (i.e., B-17 instead of B-17E; P-40 instead of P-40F, etc.)

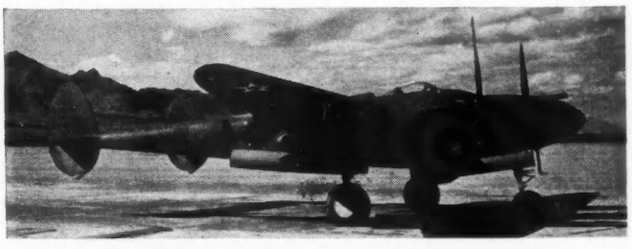


INTERCEPTOR FIGHTER. Low wing all metal monoplane; radial air-cooled 18-cyl. engine; constant pitch propeller; retractable landing gear; turbo-supercharged. (Republic P-47).

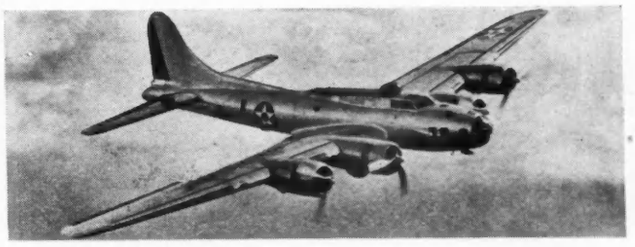
PURSUIT OR FIGHTER. Low wing all metal monoplane, liquid-cooled 12-cyl. Vee-type engine; constant speed propeller; retractable tricycle landing gear. (Bell Airacobra P-39D).

PURSUIT OR FIGHTER. Low wing monoplane with all metal fuselage and wings; liquid-cooled 12-cyl. engine; constant speed, controllable pitch propeller; retractable landing gear. (Curtiss P-40F).

MEDIUM BOMBER AND TRANSPORT. Low wing all metal monoplane; two radial air-cooled 9 or 14-cyl. engines; constant speed, controllable pitch metal propellers; retractable landing gear. (Douglas C-51.)



INTERCEPTOR PURSUIT. Mid-wing all metal monoplane; two Vee-type liquid cooled 12-cyl. engines; constant speed controllable pitch propeller; retractable tricycle landing gear. (Lockheed P-38).



SUPER BOMBER. Low wing all metal monoplane; four radial air-cooled 14-cyl. engines; constant speed, controllable pitch propellers; retractable landing gear. (Boeing B-17E, Flying Fortress).

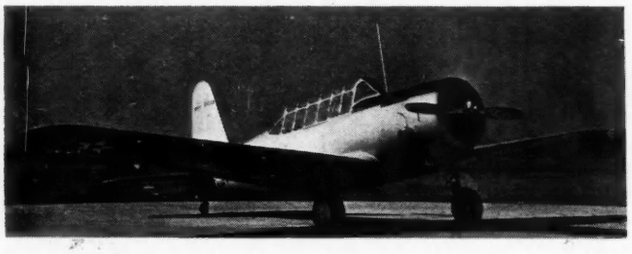
UNITED STATES

A TABLE OF AIRPLANES IN

Type and Make	Model
BOMBERS (4-engine)	
Consolidated	PB-2Y
Martin	PB2M
BOMBERS (2-engine)	
Boeing	PBB
Consolidated	PBY
Naval Aircraft	PBN
Martin	PBM
BOMBERS (1-engine)	
Brewster	SB2A
Curtiss	SBC, SB2C
Douglas	TBD, SBD
Grumman	TBF
Naval Aircraft	SB
Vought-Sikorsky	SB2U
FIGHTERS (1-engine)	
Brewster	F2A
Grumman	F4F
Vought-Sikorsky	F4U

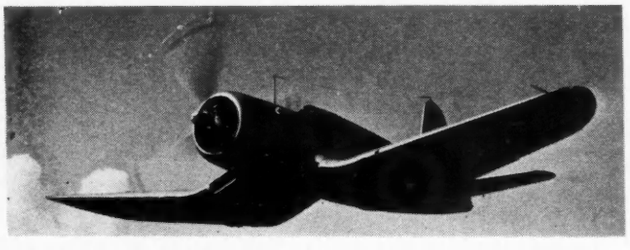
The photographs shown on these pages represent examples of the most recent type of planes used by the U. S. Navy, and are illustrative of those brought into service or into announced production during 1941. The caption below each photograph gives the chief characteristics of the type illustrated.

SCOUT BOMBERS. In bombing formation, first plane falling off into dive for dive bombing. (Douglas SBD). (*Left*)



SCOUT TRAINER. Low wing monoplane with metal wings and fuselage; radial air-cooled 9-cyl. engine; controllable pitch propeller; fixed landing gear. (Vultee).

SCOUT TRAINER. Low wing monoplane with metal wings and fuselage; radial air-cooled 9-cyl. engine; controllable pitch propeller; semi-retractable landing gear. (Curtiss).



GULL-WING FIGHTER. Low wing monoplane with metal wings and fuselage; radial air-cooled 14-cyl. engine; constant speed controllable pitch propeller; retractable landing gear. (Vought-Sikorsky F4U).

FIGHTER. Low wing monoplane with all metal wings and fuselage; radial air-cooled 18-cyl. engine; controllable pitch propeller; retractable landing gear. (Brewster F2A).

NAVY AIRPLANES

SERVICE OR ANNOUNCED PRODUCTION

Type and Make	Model
OBSERVATION (1-engine)	
Curtiss	SO3C
Naval Aircraft	OS2N
Vought-Sikorsky	OS2U
TRAINERS—Primary (1-engine)	
Naval Aircraft	N5N & NR
Ryan	NR-1
Spartan	NP
Stearman	N2S
TRAINERS—Advanced (1-engine)	
Curtiss	SNC
North American	SNJ-3
TRAINERS—Advanced (2-engine)	
Beech	JRB-1
TRANSPORT (1-engine)	
Beech	GB-2
TANSPORT & CARGO (2-engine)	
Beech	JRB-2
Douglas	R4D
Lockheed	R-50

Elsewhere in this issue appear specifications of standard American aircraft engines.

CREDIT NOTE:—The halftone illustrations of Navy planes are made from official photographs of the U. S. Navy and credit is hereby gratefully acknowledged. The tabulation showing make and model designation of Navy aircraft was compiled by the Aeronautical Chamber of Commerce of America.

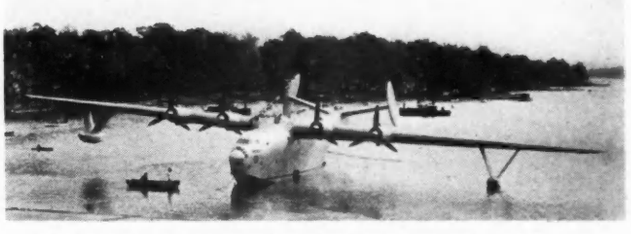
FORMATION OF TYPICAL SCOUT BOMBERS. Low wing monoplanes for aircraft carrier service. Powered by radial air-cooled 14-cyl. engines. (Vought-Sikorsky.)

TYPICAL PATROL BOMBERS. High wing monoplanes; two radial air-cooled 9 or 14-cyl. engines; constant speed propellers (Consolidated). (*Right*)

SCOUT BOMBER. Low wing all metal monoplane; with radial air-cooled 9 or 14-cyl. engine; controllable pitch propeller. Note perforated landing flaps or "air-brakes." (Douglas SBD).

SCOUT BOMBER. Mid-wing monoplane with metal wings and fuselage; radial air-cooled 9 or 14-cyl. engine; controllable pitch propeller; retractable landing gear. (Brewster SB2A).

PATROL BOMBER. High wing monoplane with metal wings and hull; four radial air-cooled 14 or 18-cyl. engines; constant speed, controllable pitch propeller. (Consolidated PB2Y).



LONG DISTANCE PATROL BOMBER. High wing all metal monoplane; four radial air-cooled 18-cyl. engines; twin fins and rudders. (Martin PB2M-experimental).

TANKS

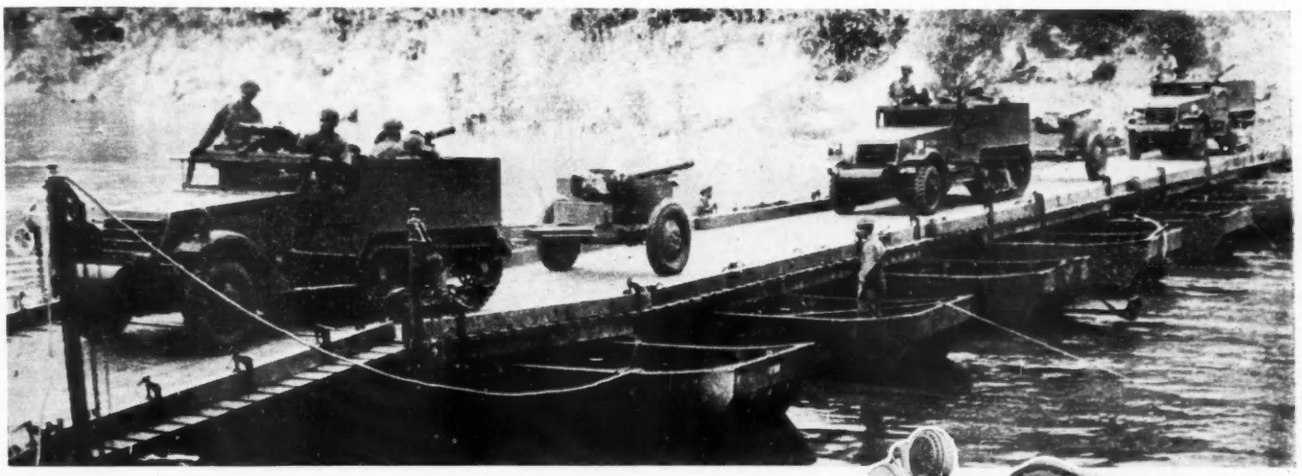
(Circle) Heavy (60 ton) tank, T1-E1 (frequently referred to as M-1). Powered by radial air-cooled engine; hydraulic torque converter and gear transmission. Steel track. Power operated turret. Armed with heavy and light cannon and machine guns.

(Below) Light tank. Powered by a radial air-cooled engine and gear transmission. Rubber track and rubber tired bogie wheels. Driven by forward sprocket. Armed with rapid fire cannon and machine guns.

(Below) Medium (28 ton) tank M-3A1. Powered by a radial air-cooled engine; gear transmission. Rubber track and rubber tired bogie wheels driven by forward sprocket. Armed with 75 mm. and 37 mm. gun and machine guns.

(Left) Medium tank in maneuvers.

Motor Vehicles of the U. S. Army



On these and the following four pages are pictures of types of motor vehicles used by the U. S. Army. The variety of trucks is almost endless but actually there are only seven basic types (¼-ton, ½-ton, 1½-ton, 2½-ton, 1½-3 ton, 4-ton and 6-ton). These half-tone illustrations were made from photographs supplied us by the Ordnance Department, Quartermaster Corps and the Signal Corps and credit is gratefully extended to these departments of the U. S. Army.

(Above) Motorcycle with side car.

(Above) ¼ ton, 4x4 truck. The famous "Jeep".

(Above) Officers light sedan.

(Left) Staff car used in field work.

TANKS

(Circle) Heavy (60 ton) tank, T1-E1 (frequently referred to as M-1). Powered by radial air-cooled engine; hydraulic torque converter and gear transmission. Steel track. Power operated turret. Armed with heavy and light cannon and machine guns.

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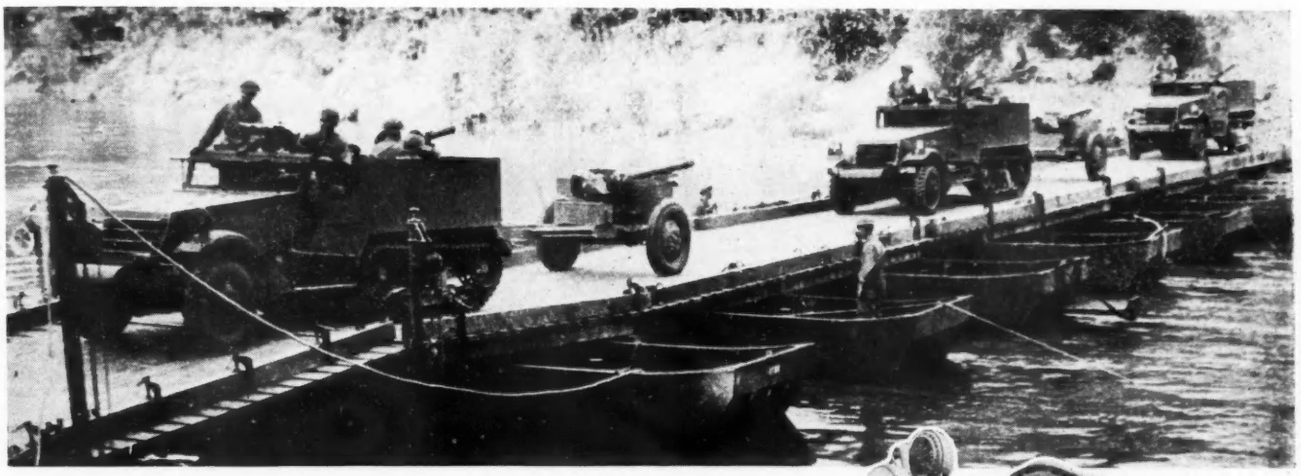
(Left) Medium tank in maneuvers.

Motor Vehicles of the U. S. Army



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(Above) Motorcycle with side car.

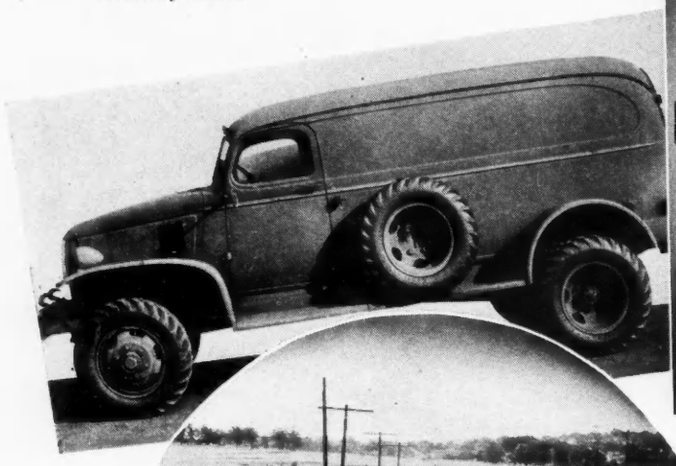
(Above) ¼ ton, 4x4 truck. The famous "Jeep".

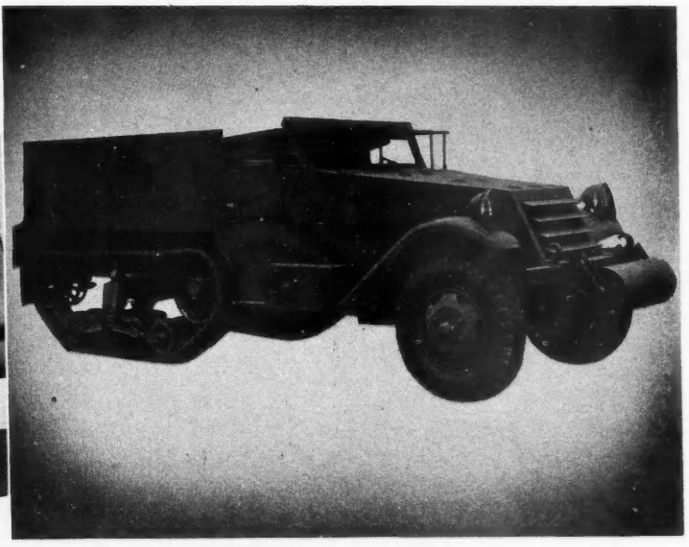
(Above) Officers light sedan.

(Left) Staff car used in field work.

Motor Vehicles of the U. S. Army—*continued*

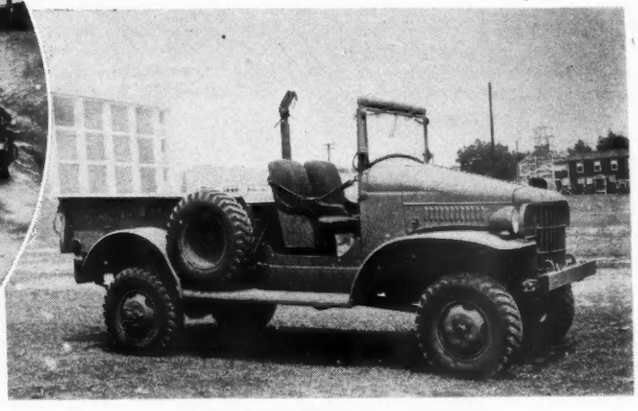
(Below) 1½ Ton, 4x4, Panel Delivery truck.





Half-track armored scout-car.

4x4 armored scout-car equipped with machine guns and radio antennae.



½ ton, 4x4 weapon carrier.

½ ton, 4x4 radio car.

1½, 4x4 cargo and troop carrier.

1½ ton, 4x4 dump truck.

1½ ton, 4x4 truck-tractor.

2½ ton, 6x4 truck-tractor.

4-5 ton, 4x4 truck-tractor.

2½ ton, 6x6 truck with winch.

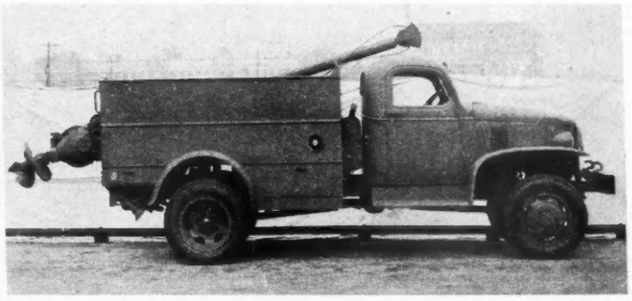
4 ton, 6x6 truck.

Motor Vehicles of the U. S. Army—*concluded*

6 ton, 6x6 truck with winch.

(Below) 1½-3 ton, 4x4 truck with bus body, used for machine shop, spare parts, tool and bench truck.

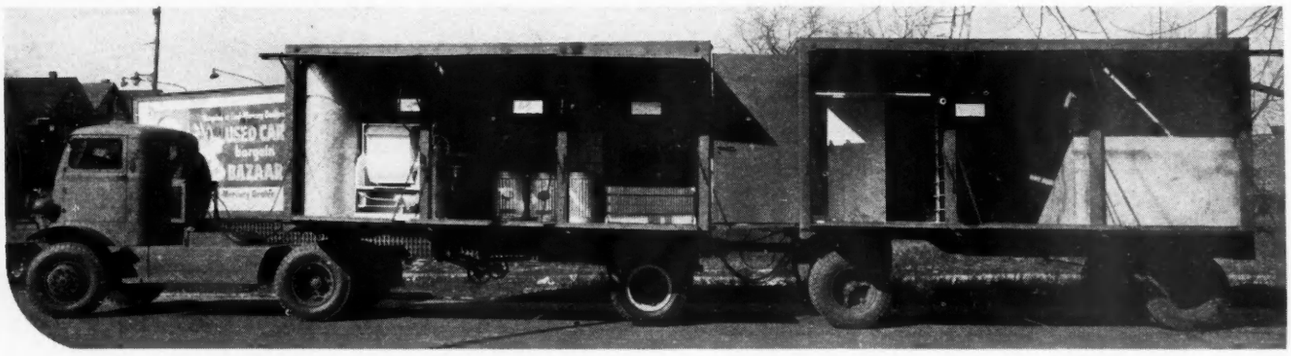
1½ ton, 4x4 truck with earth boring and pole setting equipment.



1½ ton, 4x4 telephone maintenance and construction truck.

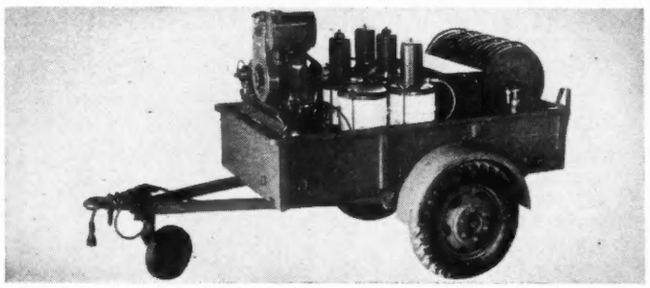
Midget tractor.

Truck-trailer vans used for hauling cavalry to advance positions.



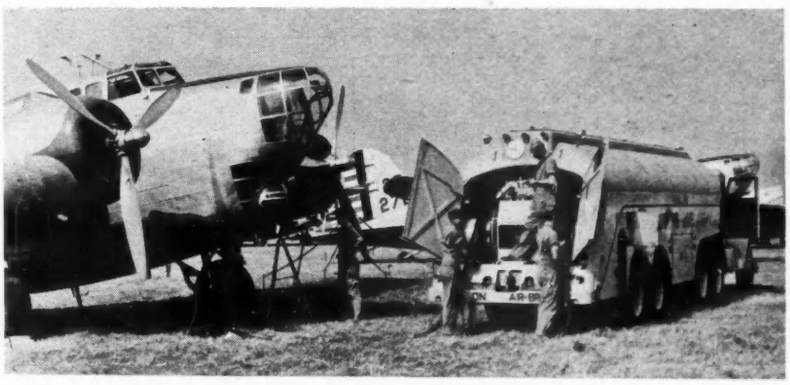
4x4 truck-tractor used for hauling mobile bakery.

(Below) Army trailer hauling complete portable lubricating equipment.



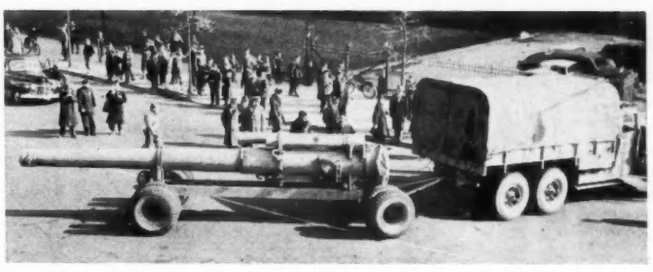
Complete machine and repair shop on wheels.

(Left) Truck with mobile flood lights for night landings.



Aircraft servicing semi-trailer gasoline tank equipped with pump, meters, hose, etc.

750 gal.—2 compartment tanker used for refueling convoys.



240 mm. howitzer being towed by army truck.

6x6 truck-tractor with crane hauling Air Corps trailer.

THE AIRCRAFT INDUSTRY

Manufacturers of aircraft, engines and propellers.

The following data were obtained from published reports of the Census of Manufacturers:

NUMBER OF EMPLOYEES		VALUE OF PRODUCTS		AIRPLANE PRODUCTION *	
1914	168	1914	$789,782	1926	1,136
1919	3,543	1919	14,372,643	1927	2,186
1921	1,395	1921	6,641,988	1928	4,761
1923	2,901	1923	12,945,263	1929	6,034
1925	2,701	1925	12,524,719	1930	2,684
1927	4,422	1927	30,655,509	1931	2,394
1929	14,710	1929	96,119,007	1932	1,141
1931	9,870	1931	54,058,069	1933	1,057
1933	7,816	1933	35,111,339	1934	1,209
1935	11,384	1935	57,957,315	1935	1,568
1937	30,384	1937	149,699,756	1936	2,700
1939	48,637	1939	279,496,844	1937	3,230
1940	193,000	1940	544,000,000	1938	.....
1941	425,000	1941	1,500,000,000	1939	2,404
				1940	5,800

Certificated Aircraft and Pilots by States as of January 1.*†

	CERTIFICATED AIRCRAFT					CERTIFICATED PILOTS				
	1942	1941	Percent Increase	1940	1939	1942	1941	Percent Increase	1940	1939
Alabama	185	119	55.5	88	60	977	661	47.8	210	160
Arizona	156	103	51.5	79	64	740	431	64.1	183	125
Arkansas	211	149	41.6	75	47	1,260	603	109.0	124	110
California	2,404	1,753	37.1	1,431	1,107	12,053	8,285	45.5	5,193	4,207
Colorado	248	169	46.7	136	92	1,495	960	55.7	355	222
Connecticut	274	198	38.4	158	149	930	592	57.1	417	350
Delaware	134	89	50.6	62	54	261	205	27.3	82	64
District of Columbia	311	214	45.3	149	117	816	560	45.7	362	308
Florida	564	389	45.0	293	234	2,500	1,462	71.0	748	580
Georgia	380	241	57.7	155	136	1,550	1,072	44.6	435	215
Idaho	123	92	33.7	63	51	758	523	44.9	185	128
Illinois	1,370	992	38.1	874	663	5,039	3,033	66.1	1,817	1,353
Indiana	687	519	32.4	410	314	2,060	1,416	45.5	909	585
Iowa	549	381	44.1	245	184	2,299	1,261	82.3	598	384
Kansas	501	382	31.2	205	164	2,399	1,326	80.9	430	281
Kentucky	176	118	49.2	89	63	649	375	73.1	181	117
Louisiana	284	208	36.5	134	109	1,479	1,000	47.9	321	253
Maine	203	134	51.5	113	98	531	330	60.9	184	125
Maryland	373	230	62.2	157	122	1,155	758	52.4	408	280
Massachusetts	594	406	46.3	322	264	2,527	1,728	46.2	1,062	781
Michigan	1,017	723	40.7	559	428	3,820	2,208	73.0	1,203	935
Minnesota	600	401	49.6	275	194	2,251	1,053	113.8	544	353
Mississipp	155	116	33.6	111	94	774	468	65.4	141	107
Missouri	649	505	28.5	331	239	3,215	2,075	54.9	738	525
Montana	170	130	30.8	76	55	849	544	56.1	159	114
Nebraska	224	166	34.9	152	119	1,365	879	55.3	294	176
Nevada	71	50	42.0	28	30	235	174	35.1	57	34
New Hampshire	90	58	55.2	48	39	410	280	46.4	129	85
New Jersey	698	496	40.7	388	273	2,549	1,630	56.4	976	762
New Mexico	184	76	115.8	37	31	611	364	67.9	69	66
New York	1,765	1,323	33.4	1,091	932	7,395	4,863	52.1	2,636	2,091
North Carolina	496	352	40.9	231	166	1,412	757	86.5	518	222
North Dakota	129	102	26.5	68	48	637	385	65.5	103	72
Ohio	1,286	899	43.0	748	556	4,251	2,654	60.2	1,471	1,128
Oklahoma	526	362	45.3	243	198	2,612	1,448	80.4	429	290
Oregon	334	210	59.0	149	111	1,601	921	73.8	409	259
Pennsylvania	2,357	1,438	63.9	958	732	5,354	3,452	55.1	1,882	1,335
Rhode Island	169	135	25.2	97	64	377	209	80.4	109	71
South Carolina	234	160	46.3	102	68	1,057	627	68.6	208	103
South Dakota	119	87	36.8	71	62	644	442	45.7	136	106
Tennessee	313	226	38.5	157	126	1,646	1,086	51.6	417	285
Texas	1,418	980	44.7	612	504	6,842	3,918	74.6	1,384	1,002
Utah	122	81	50.6	44	36	930	545	70.6	152	126
Vermont	75	59	27.1	39	34	300	207	44.9	92	75
Virginia	402	269	49.4	181	116	1,459	1,018	43.3	552	412
Washington	448	296	51.4	221	184	2,515	1,709	47.2	875	525
West Virginia	209	146	43.2	130	86	1,129	721	56.6	271	183
Wisconsin	490	347	41.2	256	204	1,690	929	81.9	457	334
Wyoming	102	64	59.4	46	36	396	238	66.4	113	90
Alaska	187	149	25.5	94	96	232	184	26.1	125	95
Canada (1)	1	1	.....	1	1	180	44	309.1	35	29
Canal Zone	0	0	.....	1	0	46	37	24.3	37	51
Hawaii	51	31	64.5	24	24	274	254	07.9	157	146
Mexico (1)	0	1	.....	0	0	8	8	.....	6	6
Philippine Islands (2)	0	0	.....	0	2	33	21	57.1	21	24
Puerto Rico	31	21	47.6	17	6	57	45	26.7	16	12
Foreign, Miscellaneous	7	5	40.0	5	14	153	115	33.0	129	126
Totals	24,836	17,351	43.1	12,829	10,000	100,787 (3)	63,113 (4)	59.7	31,264	22,983

Further details regarding the growth and present extent of the Aircraft Industry have been omitted at the request of the War Department.

(1)—Figures for these countries are for aircraft and pilots registered by the United States.

(2)—Civil aircraft in the Philippine Islands are now registered with the local Government.

(3)—Includes 3,206 women pilots divided as follows: 184 commercial, 13 limited commercial, and 3009 private.

(4)—Includes 2,145 women pilots divided as follows: 113 commercial, 27 limited commercial, 1,803 private, and 202 solo.

*—These figures do not represent any military statistics.

†—Civil Aeronautics Administration.

First Steps Toward Subcontracting

THE first step that any manufacturer who wants war work should take is to compile a survey of his firm's business record, manufacturing facilities, production capacity and capabilities. This survey should include:

1. A description of normal products made in the plant; the experience of managerial and supervisory personnel; previous war production experience; a financial statement and names of past and present customers for reference.

2. The number of his factory employes; their skills; peak employment of the plant for one, two and three shifts; a description of the available labor supply and the competition for it; a brief analysis of existing and nearby wage rates.

3. The location of his plant with its transportation facilities; available power and water facilities and similar production factors; complete layout plans covering each section of the plant accompanied by photographs; a list of all tools giving type, make, age, size and serial number as well as tolerances usually allowed.

This survey should be both accurate and complete. It should be used to the fullest possible extent in contact with the following sources of orders:

1. The nearest field office of the Contract Distribution Branch of the War Production Board (see list below) where he can learn what war items are needed, can study blueprints and samples and, at some of these offices, see exhibits of needed bits and pieces in which the prime contractors display actual parts and subassemblies that may be farmed out.

2. The Army's District Procurement Offices. Copies of "Army Purchase Information Bulletin" may be obtained by writing to the Office of the Under Secretary of War, Washington, D. C. This bulletin contains addresses of the various procurement offices, the types of products they buy and procedure to be followed in getting orders.

3. The Navy's Bureau of Supplies and Accounts. A booklet, "Selling to the Navy," may be obtained by writing to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

4. Local Prime Contractors. Addresses of such contractors and other information regarding them can be obtained by bona fide manufacturers at the field offices of the Contract Distribution Branch, WPB. (See list below.)

Some manufacturers have been slow to realize that getting war work requires the same resourcefulness they showed in founding and building their businesses. It must not be assumed that there is any formula which will bring war work to all manufacturers however eager they may be to get it or with whatever zeal they may pursue it. Harnessing the capacity of small, medium-sized and even large factories is one of the toughest production problems America faces, and there are many complicating factors.

Prime contracts are being placed with mass production industries as fast as possible. Firms receiving such contracts will need thousands of subcontractors to help them meet early delivery dates called for in the defense program.

Where Field Offices and Exhibits of Contract Branch of W. P. B. Are Located

NOTE—* Indicates Main Office in State. SD—State Director. CAC—Chairman of Advisory Committee.

ALABAMA

*BIRMINGHAM
L. E. Geohegan, Mgr., 1706 Second Ave., N.

ARIZONA

Wm. I. Walsh, SD
A. F. Moriarty, CAC
*PHOENIX
Fred F. Schalmo, Actg. Mgr., 406 Security Bldg.

ARKANSAS

Alfred M. Lund, SD
Chas. L. Thompson, CAC
FORT SMITH
Frank P. Delazelere, 13 North 7th St.
*LITTLE ROCK
Alfred M. Lund, Mgr., 3rd & Spring Sts.

CALIFORNIA

SAN FRANCISCO
Col. Francis M. Smith, Mgr., 1355 Market St.
FRESNO
E. H. Cameron, Actg. Mgr., 314-318 Mattei Bldg.
LOS ANGELES
W. L. Moreland, Mgr., 1031 S. Broadway
OAKLAND
W. P. Collins, Actg. Mgr., 209 Financial Center Bldg.
SAN DIEGO
Paul C. Farmer, Actg. Mgr., 235 Broadway
SACRAMENTO
E. H. Cameron, Actg. Mgr., 1014 8th St.

COLORADO

Clyde C. Hartzell, SD
Wm. L. Petrikin, CAC
*DENVER
El Roy Nelson, Manager, 817 17th St.

CONNECTICUT

Earle L. Milliken, SD
Carl Gray, CAC
*HARTFORD
Earle L. Milliken, Mgr., 805 Main St.
BRIDGEPORT
Raymond L. French, Actg. Mgr., 144 Golden Hill St.
NEW HAVEN
Chas. A. Newton, Mgr., 152 Temple St.

DELAWARE

*WILMINGTON
Bradley L. Geist, Mgr., French & Water Sts.

FORIDA

Chas. C. McCubbin, SD
George W. Simons, CAC
*JACKSONVILLE
Chas. C. McCubbin, Actg. Mgr., Main & Forsyth Sts.
MIAMI
Forrest D. Banning, Actg. Mgr., 701 Congress Bldg.
TAMPA
Arthur B. Hale, Mgr., 901 Wallace S. Bldg.

GEORGIA

Wiley Moore, CAC
*ATLANTA
J. V. Booth, Actg. Mgr., Suite 150, Hurt Bldg.

IDAHO

*BOISE
Clyde C. Hartzell, Actg. Mgr., 409 Capital Securities Bldg.

ILLINOIS

Joseph A. Overlook, SD
Clarence Alvidsen, CAC

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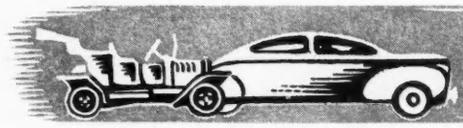

CARS IN USE BY MAKES,

Model		Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
BUICK	6 Mo. '41	2280	905	1191	15688	2479	6195	804	3364	5302	4638	1080	24413	9934	4224	3275	2632	3300	1421	3024	10692	29074	5224	1828	5659	1050
	'40	1819	778	1035	24681	2116	5726	678	2910	4894	3156	836	22787	7418	3928	2633	2550	2647	1518	4386	10866	16362	5220	1444	6294	987
	'39	1381	628	742	18417	1736	4483	505	2073	3504	2184	463	16611	4018	3155	1918	1915	2031	1052	3116	7545	10709	3980	959	4580	769
	'38	950	564	423	16127	1397	3817	402	1565	2806	1589	391	12592	3750	2464	1500	1408	1334	901	2231	5673	6866	2980	491	3304	586
	'37	1095	760	505	21095	2177	5214	525	1664	2982	1771	631	16091	5275	2915	2085	1827	1332	1120	2331	7386	12105	3509	605	3960	752
	'36	866	548	374	16196	1650	3906	396	1202	2344	1444	438	11440	3907	2226	1701	1371	1040	1067	1924	6471	7681	2875	444	2978	541
	'35	325	163	130	7053	439	1148	130	326	766	570	107	3848	1898	851	601	473	339	351	1042	1925	2193	987	193	1107	105
	'34	269	198	125	4824	513	1622	154	302	860	582	140	3724	1218	725	588	483	324	468	538	2940	2183	976	174	1049	138
	'33	140	145	44	3427	339	1232	101	249	522	359	55	2598	682	332	350	278	161	269	302	1980	1085	657	76	698	104
	'32	144	130	56	3650	399	1297	111	242	515	385	64	2008	693	435	375	275	222	389	279	2156	1272	734	56	753	113
	'31	225	281	90	6796	930	1906	188	236	773	551	212	3005	1176	1191	766	471	215	665	425	2668	1951	1459	122	1138	181
	'30	147	317	86	6918	695	1223	145	170	383	344	221	2870	1005	1008	801	361	170	392	410	1593	1870	1141	133	918	154
	'29	105	309	81	8212	673	625	115	78	282	309	250	2342	1019	1046	784	324	138	302	354	737	1497	1006	135	896	219
	'28	115	249	64	6817	599	569	113	53	252	322	249	2106	972	1158	771	268	124	282	293	537	1212	990	123	878	188
	Before '28	121	344	66	12829	737	618	164	53	450	355	368	2771	1773	1951	1095	295	115	389	480	536	1652	2145	138	1239	228
	Unid.*	8	7	242	31	8	37	5	252	71	179	1	289	54	7	16	1	286	6	5150	33	2140	17	24	155	5
	Total	9990	6326	5254	172761	16887	39618	4536	14739	26706	18738	5506	129495	44792	27616	19259	14932	13778	10592	26285	63738	99852	33900	6945	35604	6120
CADILLAC	6 Mo. '41	275	168	137	3774	387	1561	173	621	1489	724	88	5027	1311	337	227	330	477	318	538	2268	3929	525	133	943	102
	'40	43	47	34	2593	82	368	43	161	401	159	14	1271	277	91	48	68	106	62	282	551	498	133	22	358	20
	'39	52	50	28	1577	86	338	41	148	328	134	12	1183	175	66	67	84	112	63	135	461	436	145	22	231	33
	'38	41	34	19	1416	56	259	30	112	280	106	12	785	183	47	45	53	63	43	87	373	238	86	7	203	13
	'37	46	48	17	1447	99	399	44	156	318	127	8	1033	213	91	49	94	75	61	113	660	408	121	10	181	5
	'36	34	38	18	1546	93	336	41	127	309	105	10	935	210	74	55	78	77	78	117	597	378	125	10	201	10
	'35	6	12	1	904	28	98	12	46	66	35	3	271	92	15	20	36	30	20	54	199	105	34	2	86	1
	'34	17	13	5	579	39	158	15	36	98	37	2	280	69	23	21	45	29	19	28	246	84	37	4	62	3
	'33	6	7	4	392	17	80	8	22	48	18	2	120	27	8	8	39	19	15	14	135	48	30	7	36	3
	'32	6	10	4	561	22	91	11	26	47	37	4	164	41	17	17	20	16	9	20	146	90	22	7	34	5
	'31	13	25	7	1012	59	299	26	44	99	38	9	271	91	53	30	44	24	37	21	379	161	77	3	67	11
	'30	6	19	6	972	22	152	12	26	63	18	2	134	47	29	13	33	8	24	24	174	65	40	11	36	4
	'29	5	25	5	770	21	119	9	4	37	13	7	113	44	20	12	40	11	10	12	116	57	34	4	46	9
	'28	4	19	6	699	17	55	6	6	17	11	7	68	30	16	6	23	11	6	12	56	31	35	8	34	5
	Before '28	9	23	4	995	42	76	10	6	21	14	9	109	44	51	17	20	6	18	30	62	42	53	4	45	12
	Unid.*			7	7	2	3	1	15	14	12	1	16	3	1	1		20		319	3	181	1	2	7	
	Total	563	538	302	19244	1074	4392	482	1556	3635	1588	190	11780	2857	939	636	1007	1084	783	1806	6424	6749	1498	256	2570	236
CHEVROLET	6 Mo. '41	12216	2340	6102	42295	6670	11580	1743	7255	12262	14010	3260	54201	26770	18426	13305	11281	11446	3928	10533	20858	63148	18807	7254	25406	3606
	'40	10314	2630	5808	57491	6637	10176	1657	5786	12055	12493	3256	51869	24410	18752	12006	11057	11147	3931	12738	19599	43801	18614	7722	29674	4165
	'39	8884	2062	4914	38810	6085	7090	1349	3663	9125	10388	2382	37406	14925	17162	10092	8687	8830	3106	7905	15740	29285	14841	6344	21335	3086
	'38	5590	1854	3627	34954	5071	5341	1092	2225	6801	6202	1914	29773	13697	15346	10451	7173	7268	2498	5565	11725	18021	15502	4789	16942	2253
	'37	10833	3442	4967	54392	8533	11222	1845	3492	11074	11949	3986	48331	27199	22019	15918	11346	9837	4366	8856	23497	47473	20685	7211	23582	4130
	'36	11726	3562	5940	64280	10422	11005	2045	3495	12352	13018	4477	55463	33303	25821	19424	12821	11853	4977	9129	23508	49276	24826	8492	28115	5076
	'35	7276	2049	3825	43752	5866	6900	1307	1833	7257	9556	2660	29984	20612	15021	12132	8540	6497	3023	5864	15116	24803	14548	4859	16660	3124
	'34	7427	2115	3659	31017	5362	7056	1244	1180	7852	8918	2498	24404	15147	12950	10904	7820	6486	3215	4217	14625	20094	12138	5264	14061	2354
	'33	4806	1608	3077	30051	4247	7032	1006	606	5579	7311	1449	19638	11324	10086	8808	6689	4648	2556	2971	12687	14586	9919	3927	12761	1706
	'32	2207	903	1634	16036	2683	4626	592	564	3471	3883	787	11539	6887	6246	5430	4302	2754	2125	2638	7902	8570	7253	1923	8769	1005
	'31	3827	1747	2477	33825	6129	5844	1050	490	6240	6860	1960	19777	12702	15456	10798	7991	3745	3259	3749	8729	14355	15059	2505	16077	1738
	'30	1832	1360	1613	28397	4971	2470	695	159	2611	3013	2182	13048	7965	14092	9319	5047	1974	1787	2383	2999	6890	12293	1950	11945	1615
	'29	2637	1654	2002	23385	3690	1277	641	60	2095	3487	2130	10171	7928	12421	8887	4888	2132	1093	1201	1168	6833	9683	2602	9920	1776
	'28	1814	974	1849	15457	2515	483	401	34	987	1989	1354	6850	5593	6172	5616	2342	1038	616	715	385	3457	6008	1453	8303	1209
	Before '28	1088	457	781	10652	1290	203	236	25	784	984	740	3598	2863	4288	2629	1059	439	276	552	127	2070	4887	739	4153	808
	Unid.*	135	26	3203	82	49	69	20	922	423	1041	26	673	136	32	107	52	2435	27	21784	106	12719	96	162	1031	25
	Total	92612	28783	55478	524876	80220	92374	16923	31789	100968	115102	35061	416725	231461	214310	155826	111095	92529	40783	100799	178768	365381	204958	67196	248644	37676
CHRYSLER	6 Mo. '41	734	520	379	10204	1187	2232	225	1339	2146	1328	383	9535	3504	1656	1243	1060	933	400	1466	3388	7970	2335	381	2095	614
	'40	581	325	336	9836	859	1426	159	802	1517	847	295	6228	2518	1258	880	929	705	367	1629	2535	4363	1726	374	2122	439
	'39	429	247	229	6739	614	979	118	659	1023	602	173	4742	1477	981	722	741	521	254	949	1982	2795	1334	226	1324	340
	'38	193	195	150	4906	367	647	47	415	635	303	168	2835	1184	656	530	596	390	205	611	1226	1510	937	152	954	274
	'37	383	477	262	8264	986	1553	168	679	1211	765	386	6979	2795	1330	1037	1014	676	425	1071	3045	3824	1988	283	1577	550
	'36	215	206	161	6428	609	792	94	385	710	422	206	3629	1538	875	603	613	366	200	615	1490	1757	1107	130	961	392
	'35	141	123	91	3585	329	512	64	238	440	289	165	2370	1070	602	412	453	187	138	523	1095	1131	794	81	692	248
	'34	171	86	99	2119	258	600	51	131	409	275	90	1400	625	394	310	368	133	129	244	1040	747	513	82	493	125
	'33	106	51	36	2156	211	556	42	122	267	195	34	1375	483	225	220	370	99	105	254	878	679	387	60	481	66
	'32	115	56	40	1991	193	517	72	96	307	177	32	951	420	253	158	307	117	112	138	670	623	518	43	377	59
	'31	139	94	60	3093	298	680	59	81	412	241	99	1314	719	507	254	474	165	226	217	803	708	810	55	509	103
	'30	130	114	88	3258	327	583	60	38	306	134	128	1483	578	593	363	430	124	261	214	575	534	866	95	523	132
	'29	94	148	45	4292	330	393	51	29	201	121	125	1254	587	438	327	298	90	156	156	324	643	604	84	422	124
	'28	82	125	71	4050	367	261	48	15	110	106	154	847	610	546	499	234	74	144	112	178	527	768	69	457	208
	Before '28	55	206	86	4979	388	204	54	5	208	83	141	836	724	540	522	216	47	121	99	123	535	709	59	479	195
	Unid.*	7	3	90	16	4	10	1	87	30	71	2	84	14	6	6	4	110	1	2092	16	1300	8	4	66	1
	Total	3575	2976	2223	75916	7327	11945	1313	5121	9932	5959	2581	45862	18846	10860	8036	8117	4737	3244	10382	19368	29651	15404	2158	13532	3870
DE SOTO	6 Mo. '41	522	238	129	7725	496	1631	116	745	990	772	299	5311	2371	775	684	452	443	289	784	2562	5037	1169	159	1421	178
	'40	438	210	186	7673	448	1346	102	555	831	588	238	5430	1999	637	617	431	470	275	874	2015	2882	1294	224	1662	246
	'39	390	178	150	5602	411	993	81	472	668	431	182	3927	1463	596	432	437	350	230	566	1752	2094	1036	154	1430	170
	'38	214	148	100	4261	286	726	54	215	415	260	108	2500	1011	406	425	294	261	171	366	1022	1178	805	99	903	118
	'37	405	346	186	7817	748	1678	124	435	794	512	261	6151	2665	845	860	645	388	387	694	2187	3563	1781	156	1818	220
	'36	116	218	58	6309	345	707	60	203	421	224	152	3007	1410	583	455	367	182	122	287	839	1382	781	67	817	175
	'35	86	117	56	3667	187	492	38	111	273	170	98	1767	927	445	325	220	108	79	211	479	781	428	41	459	88
	'34	47	62	21	1236	104	218	17	38	159	82	46	798	325	147	152	98	89	69	74	328	331	151	17	237	53
	'33	39	62	29	2535	114	480	26	44	133	106	34	1457	759	181	220	230	95	81	138	592	506	237	19	484	36
	'32	54	60	44	2298	92	442	27	47	178	110	46	1153	706	207	231	223	94	92	152	452	719	309	16	595	30
	'31	76	80	33	2439	102	447	24	31	147	100	67	877	826	191	153	233	132	108	81	223	563	229	23	335	64
	'30	63	107	47	2249	147	375	26	15	132	77	104	844	538	213	188	177	106	108	59	197	402	279	48	217	81
	'29	63	182	53	3543	255	302	33	12	136	86	130	1043	828	308	340	243	103	80	65	203	575	390	57	394	111
	'28																									
	Before '28																									
	Unid.*	6	5	40	22	6	12	1	65	18	46	6	90	35	7	13	17	81	5	1232	10	802	6	6	60	1
	Total	2519	2013	1132	57376	3741	9849	729	2988	5295	3564	1771	34355	15863	5541	5095	4167	2902	2096	5583	12851	20925	8895	1033	10332	1571
DODGE	6 Mo. '41	2069	553	770	10650	1532	3256	260	1937	3389	2482	676	12894	5102	2906	1972	1790	2081	875	2221	6470	14530	2413	758	3227	609
	'40	2146	631	944	15374	1520	2898	270	1747	3320	2706	710	14782	5443	3022	2094	2039	2067	860	2910	6787	11990	3232	913	5138	767
	'39	2025	526	963	15562	1678	2700	255	1922	2947	2358	598	13815	4074	3309	1887	1974	2042	825	2138	6579	10163	3160	748	4935	663
	'38	954	399	519	10400	817	1639	147	929	1616	1022	357	6896	2549	1777	1179	1406	1295	605	1291	3713	3852	2050	352	2405	423
	'37	2230	1087	1149	22561	2602	5554	384	2009	3286	2938	994	20596	7773	4023	3212	3569	2339	1411	2647	10166	14994	5194	842	5704	922
	'36	1714	1151	890	25950	2485	4246	336	1948	2893	2123	1016	19024	7462	4032	2815	3039	2023	1170	2418	8340	13093	4263	677	5014	1148
	'35	884	648	552	18376	1460	2638	203	975	1697	1300	686	10330	5444	2856	1849	2124	1204	649	1616	4446	5899	2596	443	3205	147
	'34	519	307	347	7123	700	1647	116	381	1095	829	319	5037	2067	1248	953	1185	704	435	753	3233	2385	1109	334	1701	365
	'33	377	207	291	6774	739	1888	105	340	906	654	232	5471	2307	1129	989	1200	533	467	521	2663	3864	1037	165	2358	287
	'32	121	93	106	2248	233	472	30	89	250	303	66	1122	648	473	294	343	295	154	180	728	841	437	68	622	58
	'31	210	111	135	3460	436	690	44	96	320	349	139	1761	998	871	539	612	319	295	216	905	1212	719	99	899	118
	'30	201	141	150	3432	479	780	49	45	299	250	229	1717	851	1124	672	495	309	254	187	708	1152	747	116	887	142
	'29	309	266	222	5675	738	711	77	42	362	351	382	2339	1520	1695	1292	802	377	343	273	741	1489	1322	182	1181	322
	'28	297	282	197	5264	671	384	74	25	306	272	328	1759	1285	1629	1375	597	280	226	220	269	1033	1139	200	1182	321
	Before '28	257	405	222	11314	964	290	85	24	431	250	366	2246	1546	1702	1339	560	238	179	262	163	1178	1577	182	1165	290
	Unid.*	13	5	330	51	9	27	3	323	60	190	3	247	39	8	11	13	452	2	5145	17	3272	17	23	213	5
	Total	14326	6812	7787	164220	17063	29820	2438	12830	23177	18377	7101	120038	43106	31804	22442	21838	16343	8830	22376	55939	91402	31107	6102	33738	7187

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

STATES AND YEAR OF MANUFACTURE

Model		Neb.	Nev.	N. H.	N. J.	N. M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.†	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
BUICK	6 Mo. '41	1996	367	756	13894	832	34803	4115	523	21291	2027	3861	23505	1320	1472	669	3226	13015	994	753	4035	4514	2544	6893	722	297803
	'40	1505	363	1142	12626	674	34991	2894	520	17298	2874	2196	19781	1913	1521	687	2394	9325	769	798	3401	3367	2064	5987	638	267297
	'39	1108	232	836	9256	473	23419	2390	409	11088	2380	1577	14744	1514	1123	526	1918	6895	546	611	2520	2453	1402	4388	473	190753
	'38	950	184	558	8494	450	20030	1963	312	7776	1924	1280	11731	949	754	426	1284	5572	484	464	1964	1916	1052	3173	364	150165
	'37	1222	260	676	11419	547	24847	1974	266	12977	2130	1976	15348	1287	910	550	1448	5848	647	518	2179	3078	1322	4502	450	196093
	'36	1113	177	675	8543	383	20760	1480	253	8350	1885	1315	11543	1100	660	539	1071	4490	468	542	1624	1896	937	3049	357	148238
	'35	391	38	239	2695	168	6504	689	146	2572	876	263	3793	382	284	206	439	1668	138	145	642	470	238	1189	110	51355
	'34	342	54	304	3800	133	7775	690	106	2751	767	379	4521	579	267	143	371	1549	165	200	549	662	251	1074	118	52667
	'33	179	34	165	2747	56	6186	266	67	1742	381	243	2972	408	155	58	185	789	117	114	327	457	130	695	57	34705
	'32	234	46	197	2916	92	7011	310	73	1511	335	302	3262	457	156	74	241	673	108	173	337	567	123	833	75	36859
	'31	669	58	314	3736	143	8501	518	182	2174	524	895	5486	513	258	223	350	1148	234	254	468	1450	177	1268	136	57300
	'30	696	88	194	2501	124	5262	404	140	1982	649	778	4225	320	199	179	248	843	201	180	241	1289	117	1085	114	45534
	'29	951	84	141	1101	134	2513	268	237	1519	825	706	3382	153	137	262	165	746	213	159	217	1376	89	1172	127	38515
	'28	1235	79	128	990	120	2336	340	270	1614	626	758	3301	111	181	340	162	749	168	131	211	1284	86	1153	116	35793
	Before '28	1639	137	148	1103	128	2304	369	776	2335	898	1157	4795	101	199	667	134	766	234	169	199	1711	134	1926	132	53073
	Unid.*	6		5	19	1	134	6	2	80	44	2	130	7	3	2	168	148	2	2	7	3	5	30	2	9832
	Total	14236	2201	6478	85840	4458	207376	18676	4282	97060	19145	17688	132519	11114	8279	5551	13804	54224	5488	5213	18921	28493	10671	38307	3991	1665984
CADILLAC	6 Mo. '41	195	125	125	2672	93	7659	554	36	2944	331	362	3399	261	103	60	421	2005	153	90	487	502	345	820	52	49654
	'40	25	39	67	679	25	1843	89	6	767	204	59	818	162	44	6	103	564	36	21	96	109	66	256	8	13823
	'39	24	31	44	696	25	1808	108	4	718	122	70	826	120	38	6	88	506	28	19	89	91	43	217	8	11736
	'38	21	17	39	530	17	1260	62	8	410	125	52	512	72	14	2	55	313	21	6	68	72	27	121	5	8490
	'37	26	24	36	833	22	2000	99	4	703	88	61	865	107	37	4	63	311	26	21	89	134	54	183	10	11621
	'36	30	21	33	819	19	1641	82	6	580	102	79	80	101	21	9	59	302	23	19	86	107	37	149	9	10740
	'35	11	4	14	271	2	466	17	2	153	39	13	242	29	3	1	25	67	8	6	22	31	7	44	1	3654
	'34	12	7	5	299	5	618	23	2	176	34	25	293	41	4		13	85	8	5	20	50	6	46		3732
	'33	9	4	4	181	2	433	14	1	117	18	9	160	23	1	1	17	19	3	7	10	16	8	22	1	2193
	'32	9	3	10	252	5	464	13	2	125	25	15	214	19	5	1	21	44	5	5	15	31	10	31	1	2752
	'31	24	9	17	565	11	1130	34	6	249	41	54	513	65	11	7	21	80	24	18	32	90	13	52	5	5971
	'30	13	5	9	226	7	443	13	2	125	26	29	228	22	3	4	13	32	18	9	9	53	5	33	2	3259
	'29	15	12	12	166	9	289	11	3	74	15	22	184	15	3	1	8	24	18	6	16	53	7	13	4	2523
	'28	8	2	4	83	1	152	19	4	46	13	26	126	4	6	2	8	16	14	7	4	34	6	12	4	1791
	Before '28	20	8	6	66	8	162	19	9	60	28	59	184	13	15	9	10	29	14	9	10	50	6	20	5	2541
	Unid.*				4		10			10	5		12	1			5	20			2			3		688
	Total	442	311	425	8342	251	20378	1157	95	7257	1216	935	9446	1055	308	113	930	4417	399	248	1055	1422	640	2022	115	135168
CHEVROLET	6 Mo. '41	8113	790	2040	26058	2633	60630	16041	3049	57999	8779	9609	44733	3395	6898	3018	15409	44625	2610	1793	15480	11071	9323	19148	1949	784093
	'40	7023	856	2674	24432	2840	58205	14174	3476	47709	13804	7588	42513	4317	8041	3279	12221	40885	2948	1786	14629	10339	7829	18313	2120	749789
	'39	6305	686	2217	17473	2380	40350	13891	2687	29441	11031	5594	34612	3133	7307	3179	9711	32364	2192	1219	11546	8129	5558	13948	1773	559822
	'38	6207	537	1702	14608	2056	32556	10296	2813	21669	10268	4608	28011	2129	4810	2767	6885	29256	1923	1102	8648	6051	4217	12447	1363	452503
	'37	9239	874	3075	24867	3000	56723	17762	3507	51328	13315	8950	47334	4311	8725	4433	10734	40978	3696	1932	15210	13423	8688	21690	2144	776123
	'36	11955	924	3186	26197	3448	61191	16885	3898	58109	17362	10338	52502	4660	8899	5188	12169	50851	4067	2080	16181	14561	9659	25914	2493	877123
	'35	7030	540	2286	16176	2014	35465	14699	3161	30090	12815	4736	33484	3448	6939	3412	8972	30166	2358	1288	10464	7272	4285	14256	1547	529967
	'34	5804	451	2237	17641	2026	37176	14787	2559	26593	10454	4227	31921	3513	6644	2917	7701	28661	2141	1117	9078	6871	3881	12712	1205	474324
	'33	5326	288	2048	16028	1342	36632	10123	2000	19998	9553	3537	25796	3488	6148	2254	5567	27108	1536	1014	6330	5685	2916	8769	848	393412
	'32	3237	208	1418	11440	684	27661	4754	1457	11997	5060	2075	15198	2137	2394	1382	3323	12184	900	892	4557	3032	1767	6741	523	239750
	'31	8492	382	1913	13022	1204	33497	9125	2823	18639	7007	4929	26967	2491	5825	3465	6372	17077	1869	1166	7016	6577	2635	12670	1080	402607
	'30	7903	267	981	5069	1142	14726	3745	2946	11388	6946	4311	17849	867	2429	3596	4002	12433	1625	707	3761	6280	1744	10204	792	288323
	'29	9075	269	557	2635	1043	8475	3593	3403	10225	6192	4537	16455	377	2674	3927	3670	13599	1417	504	2395	5929	1256	8360	589	234817
	'28	6137	163	283	1148	712	4283	2461	2822	5860	3194	2841	10292	142	1139	2629	2103	6929	840	362	1529	3852	699	4567	376	143002
	Before '28	3194	115	118	527	281	1996	1006	2279	3331	1438	1697	6082	62	573	1632	818	3542	321	171	762	2127	386	3051	191	81433
	Unid.*	46	1	33	70	12	278	62		425	238	6	515	18	26	15	1783	861	6	11	62	1	34	156	9	50049
	Total	105086	7351	26768	217391	26817	510044	153204	42880	404801	137456	79583	434264	38488	79471	47093	111440	391519	30449	17144	127648	111200	64877	192944	18992	7017237
CHRYSLER	6 Mo. '41	742	232	197	5651	373	13424	1599	178	8484	760	1867	11334	545	492	271	1197	4069	381	221	1430	1887	1397	2306	267	116561
	'40	575	169	247	3820	230	9995	1233	171	5880	898	999	8024	530	506	236	804	2764	279	203	1103	1221	852	1571	208	85566
	'39	436	98	154	2833	204	7465	945	112	4041	658	829	6002	426	386	195	532	2171	207	140	753	841	562	1201	161	61552
	'38	362	65	127	2116	161	5650	608	91	2489	493	524	4021	228	196	142	438	1684	138	104	565	613	337	849	117	42204
	'37	564	164	258	4023	282	10276	1036	178	7083	786	1021	8479	726	467	300	763	2670	348	210	915	1571	942	1874	242	86894
	'36	395	102	127	2121	155	5440	584	114	3343	594	569	4724	402	215	180	443	1536	201	146	565	872	483	928	136	48979
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	'33	88	20	91	1202	49	3202	275	33	1224	191	214	2062	255	94	44	137	550	85	56	227	341	143	410	23	20474
	'32	114	24	80	1108	21	2858	269	23	968	151	214	1981	212	106	56	157	374	39	63	169	320	138	353	36	18181
	'31	279	47	98	1401	41	3823	331	79	1308	174	391	2916	282	175	125	164	545	67	105	267	619	186	608	65	26216
	'30	378	49	119	1028	71	2625	292	129	1292	241	500	3000	203	91	189	171	475	94	111	215	1022	134	626	64	25056
	'29	398	36	72	751	65	1765	251	181	974	267	436	2549	115	93	144	133	446	97	131	118	1007	98	562	62	22087
	'28	696	37	42	354	49	1042	178	335	819	263	442	2428	60	63	304	102	307	88	82	117	762	60	633	64	19989
	Before '28	573	43	55	316	57	953	160	467	916	269	696	2687	50	68	346	59	278	134	61	115	999	65	717	72	21770
	Unid.*	4		3	9	1	45	3		44	17	1	62	6	2		83	70		1	5		3	26	2	4420
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DE SOTO	6 Mo. '41	296	161	122	3161	105	8740	611	120	5771	366	1084	6376	315	255	103	674	1573	376	132	841	1525	743	1734	131	70662
	'40	253	102	233	2705	92	8745	535	122	4979	520	875	5651	330	261	158	589	1521	332	139	841	1140	540	1489	140	63993
	'39	230	99	188	2188	91	6927	441	107	3853	429	669	4530	244	245	116	461	1432	278	113	704	932	397	1112	132	50163
	'38	173	50	142	1510	84	3936	296	74	2248	358	392	3077	134	133	68	304	1020	186	89	469	595	314	689	95	32784
	'37	368	132	189	3272	158	7493	559	158	6381	686	980	6853	504	300	148	608	1594	424	145	836	1449	650	1645	132	71330
	'36	206	89	96	1402	67	4115	292	60	2639	326	576	3382	303	97	94	234	745	290	81	456	956	406	907	69	37175
	'35	169	32	65	943	42	2271	239	54	1594	198	278	2063	207	68	131	223	596	173	58	296	478	187	537	48	22803
	'34	58	13	37	389	19	916	103	23	633	120	160	962	76	48	36	73	232	69	16	111	268	54	186	22	9583
	'33	61	13	56	855	9	2171	99	24	1321	136	216	1512	279	41	31	105	232	57	44	203	359	86	369	16	16922
	'32	46	22	75	870	16	2500	110	21	1533	142	250	1551	219	71	40	108	231	52	38	182	326	102	403	16	17301
	'31	77	21	63	408	13	1570	128	30	1020	67	294	1358	185	106	64	116	425	46	41	197	470	85	384	19	14771
	'30	99	28	60	380	39	1101	104	33	743	128	370	1480	133	66	36	87	432	91	47	110	602	78	332	20	13396
	'29	318	31	89	450	49	1085	119	117	1022	196	345	1860	72	67	114	70	604	129	59	117	759	78	588	32	17905
	'28																									
	Before '28																									
	Unid.*	10		2	8	2	38	2	8	94	14		71	4	8	13	35	47	4	4	14	1	1	23		2995
	Total	2364	793	1417	18541	786	51608	3640	951	33831	3686	6489	40726	3005	1766	1152	3667	10684	2507	1006	5377	9860	3721	10398	872	441583
DODGE	6 Mo. '41	886	229	442	7910	452	19004	2557	344	12648	1280	2318	13805	811	942	503	2566	8323	524	369	3017	3135	1952	3563	302	173319
	'40	1156	251	644	7501	505	19341	2567	423	12955	2173	1806	14375	980	1303	697	2377	9148	827	382	2938	3122	1857	4026	362	186026
	'39	1051	222	676	7276	493	19853	2461	375	11020	2066	1561	13545	982	1316	606	2196	8627	668	375	2696	2820	1280	3801	437	174148
	'38	649	124	351	4986	310	12149	1416	246	5506	1478	865	7837	532	630	353	1290	4330	398	279	1582	1471	849	2196	249	98668
	'37	1480	342	903	12289	724	28676	2820	556	18565	2837	2900	20372	1703	1611	759	3413	9630	1146	660	3134	4248	2202	7043	658	256857
	'36	1727	300	759	10590	502	24388	2370	460	17004	2678	2932	17831	1550	1244	747	2698	7019	1286	551	3184	4189	2079	6045	615	232051
	'35	1144	194	504	6045	315	14005	1552	402	9516	2146	1434	10740	1105	631	517	1620	4210	771	282	1819	2574	1232	3886	370	140042
	'34	510	89	318	3776	179	8461	964	167	5127	1176	839	6150	673	521	233	821	2519	432	189	941	1573	845	1792	196	73938
	'33	476	60	277	3592	135	10097	778	122	6179	1167	833	5598	507	476	187	544	1795	273	142	852	1534	686	1955	148	73963
	'32	158	21	90	854	50	2706	286	48	1120	350	217	1623	170	116	92	295	501	57	91	272	314	203	436	42	20386
	'31	376	44	131	927	83	2818	348	120	1356	466	326	2372	222	171	217	467	870	126	135	427	527	246	982	93	29401
	'30	583	46	106	814	92	2366	355	131	1474	561	614	2576	196	131	225	451	957	171	129	293	718	270	892	97	29644
	'29	1051	99	135	868	191	2953	475	283	2222	1192	972	4108	227	178	450	599	1826	291	148	417	1351	333	1290	159	44801
	'28	1344	76	103	557	181	1657	548	433	1636	1056	886	3913	101	196	548	380	1587	232	105	448	1445	250	1259	123	38694
	Before '28	1275	109	72	548	221	1561	441	621	2135	895	1407	4520	62	167	614	319	1090	169	81	340	1646	175	1110	121	46934
	Unid.*	14	1	6	24	3	62	26		129	47	1	155	6	7	5	230	149		5	10		5	42	2	11413
	Total	13880	2207	5517	68557	4436	170097	19964	4731	108592	21568	19911	129520	9827	9840	6753	20266	62591	7371	3923	22370	30667	14464	40318	3974	1630285

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

CARS IN USE BY MAKES, STATES

Model		Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont
FORD	6 Mo. '41	7897	1198	5080	22519	4001	6376	824	3798	9477	11938	1926	30360	15474	13323	8550	7168	10522	2207	4239	12273	53753	13381	6489	12549	2373
	'40	7278	1421	5281	32815	4600	5999	830	3640	10480	11670	2125	32182	16077	14762	8209	7029	10241	2391	5952	13468	43120	13405	6537	15360	2751
	'39	6027	1211	4316	27765	4464	4322	681	3326	8172	9460	1756	27636	11771	13389	6805	6401	8897	1937	5166	11046	30651	11189	5401	11974	2238
	'38	3788	1130	2476	24909	3435	3780	547	2193	6327	6017	1394	21060	10248	11313	6133	4270	6433	1820	3166	9317	17501	11227	3163	9161	1863
	'37	9480	2425	5040	44215	7897	10074	1237	4205	12952	13932	3508	51792	27945	19707	13249	11139	10204	3967	6826	23503	64037	24004	6260	18815	3630
	'36	7968	2755	4516	57662	8382	9823	1180	4941	13165	13300	3366	45980	25034	18685	12676	9327	9877	3862	5735	23098	55807	19244	5945	17543	4154
	'35	6201	2174	3893	58970	6931	9187	1042	3521	10027	10278	2668	40300	25006	19549	12341	8953	6803	3484	5401	20188	40397	19276	4503	17104	3609
	'34	5368	1807	3422	38125	5509	6748	763	1786	8467	10459	1974	21813	13137	10139	8767	6973	5704	3029	2680	16256	25294	10196	3925	12047	1947
	'33	1962	793	1275	21543	1884	2910	322	533	3485	3444	835	8970	6099	4573	3405	2366	2020	1553	1147	6603	9882	5480	1934	4527	917
	'32	1532	744	1321	19021	1919	2150	266	455	3333	2339	547	8165	5347	3989	3465	3053	2262	1274	1183	4366	9841	4372	1264	4715	708
	'31	5270	1933	3575	40465	5390	6485	931	572	8914	12538	1699	23935	13580	12204	8403	8797	5350	4307	2148	11188	17037	16003	2305	11950	1694
	'30	6753	2787	6785	67850	8031	5921	1209	493	10232	12145	3295	32116	22736	22733	14795	12681	5745	3804	3365	6922	25118	22757	4380	17570	2557
	'29	10326	3911	10515	61299	10003	3029	1378	300	8380	15772	4222	30943	24920	26031	22441	13680	7858	3223	2537	3249	26314	27050	7147	22329	3993
	'28	4473	1162	3446	16959	2874	818	430	80	3490	3787	1367	8149	7710	7877	6959	3946	1878	760	697	557	4626	6351	5051	6803	1141
	Before '28	3588	710	4028	12942	1633	306	395	25	2787	4205	828	7607	7257	8532	8126	3198	1717	494	725	457	4382	9033	3053	10415	646
	Unid.*	147	23	4218	150	54	73	20	1161	605	1463	25	922	183	43	103	59	2399	31	19587	82	23437	193	255	856	25
	Total	88058	26184	69187	546208	77007	78000	12055	31029	120273	143046	31533	392230	232524	206899	144432	109539	97715	38148	70456	163093	451577	213165	68143	193723	34246
GRAHAM-GP.	6 Mo. '41	2	2	66	142	7	10		1	14	3	4	186	32	3		3	1	7	12	23	77	6	1	2	2
	'40	7	2	1	262	4	16		2	32	2	4	93	35	22	18	3	2	17	19	85	84	19	2	21	9
	'39	14	13	4	350	27	128	1	30	98	7	18	293	135	63	39	12	10	46	30	190	235	50	1	89	8
	'38	14	18	1	484	19	63	1	16	88	21	29	255	101	79	32	22	20	31	41	132	222	68		70	8
	'37	25	58	33	1031	115	662	8	77	290	78	98	1023	289	300	101	123	36	123	88	722	912	320	3	221	55
	'36	44	74	14	1506	105	457	7	22	239	52	77	871	508	272	72	140	36	87	55	527	830	365	4	247	60
	'35	30	78	26	1313	94	473	7	41	272	40	93	836	424	246	150	182	44	108	59	474	769	313	10	264	74
	'34	24	29	10	1071	46	156	3	43	133	53	40	506	255	77	78	86	28	70	61	279	414	148	12	198	20
	'33	13	7	9	1034	70	132	3	40	89	55	14	388	198	63	117	62	22	68	74	267	280	284	10	147	19
	'32	11	9	10	1125	48	143	2	31	64	28	23	239	127	57	69	35	21	44	35	192	180	316	9	119	7
	'31	16	16	40	1342	113	130	3	22	91	47	31	333	159	118	88	53	30	61	52	146	205	301	5	165	8
	'30	29	50	22	1763	174	155	6	26	101	57	49	381	202	262	146	78	43	61	63	163	270	541	12	198	10
	'29	100	60	31	2779	144	173	8	14	95	51	65	691	306	274	206	103	44	57	54	154	390	657	16	258	64
	'28	14	31	9	1278	79	29	2	5	42	15	24	285	175	109	103	49	10	18	23	40	124	255	13	94	71
	Before '28	3	17	3	570	34	13	1	2	9	9	17	110	39	70	41	13	5	11	16	23	63	133	4	31	30
	Unid.*	1	1	5	7	1			14	5	11		20	3			3	17	2	297	2	491	5		12	1
	Total	347	465	284	16057	1080	2740	52	386	1662	529	586	6510	2988	2015	1260	972	369	811	979	3419	5546	3781	102	2136	446
HUDSON	6 Mo. '41	927	234	222	4996	503	1410	105	528	1456	952	391	6122	3285	1552	1018	521	492	547	479	2350	8434	1044	146	923	364
	'40	889	247	306	6940	670	1271	110	610	1616	1005	445	7168	3718	1976	1115	785	737	557	796	2381	6392	1309	279	1408	488
	'39	526	204	152	4215	527	671	70	413	1082	649	257	3550	1489	1091	832	433	497	383	645	1561	3354	880	120	1000	272
	'38	387	140	87	3009	551	507	68	219	978	547	314	2312	1269	918	969	446	416	368	425	1301	2269	907	93	701	230
	'37	126	104	44	1623	233	310	29	131	301	241	172	1165	654	316	348	145	235	195	235	899	1359	276	48	300	134
	'36	90	88	33	1849	245	384	32	138	400	155	160	1264	653	431	383	175	132	189	145	1024	1443	371	50	347	223
	'35	98	83	26	1861	190	301	25	99	230	170	105	974	649	416	385	119	84	121	141	690	1018	333	26	232	146
	'34	75	75	17	1489	255	344	25	94	210	155	58	718	457	386	351	113	56	216	84	929	834	255	22	213	67
	'33	8	3	2	176	11	41	2	6	29	25	5	65	28	38	40	15	14	31	23	147	97	32	3	35	8
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	'31	20	24	9	791	126	187	11	18	149	44	33	305	231	223	160	70	32	149	70	352	398	218	7	99	32
	'30	18	28	8	1055	123	165	13	17	91	30	39	344	236	200	183	95	24	108	65	214	272	262	12	97	32
	'29	21	38	7	1630	134	96	14	15	63	47	31	403	196	163	150	63	31	74	67	174	369	175	25	107	48
	'28	19	25	3	533	43	42	6	9	23	29	21	134	74	68	70	22	7	32	35	45	95	90	8	65	14
	Before '28	12	21	4	930	64	37	6	4	46	17	11	156	107	129	75	24	10	30	37	28	116	104	13	48	20
	Unid.*	6	1	28	7	4	5		52	14	24	3	40	9	2	4		94	3	678	5	929			35	
	Total	3229	1331	954	31541	3718	5850	522	2369	6723	4121	2053	24870	13148	7984	6149	3055	2878	3053	3975	12305	27497	6335	858	5673	2069
HUPMOBILE	6 Mo. '41	3		1	16	5			11	26	7		8	19	7	2	5			2	8	60	4	1	1	
	'40	1			29	1	2			1			4	1	2	1	1	2	1	8	9	20	1	2		1
	'39	3	1		59	3	23	1	19	15	8	2	137	27	10	2	5	7		13	28	141	68	2	7	2
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	'36	4	8	1	106	23	96	1	17	19	15	22	139	43	57	9	26	14	6	10	63	85	70	5	21	22
	'35	22	25	5	488	37	192	7	57	102	68	23	385	200	172	59	83	33	21	57	280	277	244	6	109	52
	'34	21	10	11	316	13	170	4	45	67	64	13	306	150	106	31	87	21	29	39	306	184	162	7	61	11
	'33	23	5	9	532	25	113	5	26	27	44	7	223	86	28	42	70	18	20	49	253	95	291	6	83	2
	'32	21	8	15	620	46	101	6	36	54	75	9	292	114	54	73	64	29	27	43	236	282	246	7	103	2
	'31	47	19	25	1040	72	212	14	49	102	124	12	547	209	141	77	147	84	67	78	323	237	700	14	179	19
	'30	24	39	10	1100	98	192	10	11	90	61	23	503	144	241	146	100	52	37	68	176	244	358	29	137	24
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	'28	30	26	25	1965	93	173	10	11	89	34	29	445	173	213	147	85	24	42	69	128	187	410	15	137	20
	Before '28	21	29	19	1860	96	123	11	11	107	30	26	430	261	248	162	62	16	30	56	43	163	511	16	163	29
	Unid.*		1	3	5		2		10	2	12	1	12		2	1	3	14		247	3	212	3	1	2	
	Total	277	235	136	10111	657	1725	85	358	806	635	205	4307	1665	1532	909	906	387	338	837	2163	2815	3618	148	1228	211
LA SALLE	6 Mo. '41																									
	'40	96	73	55	1503	177	636	66	242	619	327	27	1987	495	154	94	167	148	126	190	1038	1159	314	50	365	50
	'39	105	72	56	2260	166	556	67	269	537	312	28	1780	336	175	98	153	139	134	254	987	1048	294	47	405	45
	'38	48	44	25	1790	90	362	41	166	370	172	25	1093	340	91	77	97	94	82	171	715	560	147	22	267	33
	'37	147	101	76	3686	240	811	88	288	676	310	28	2183	645	211	155	251	169	161	251	1485	1383	353	42	528	50
	'36	51	45	32	1902	89	266	37	128	285	134	7	913	287	89	61	79	81	73	95	601	525	134	18	237	26
	'35	29	29	18	1589	52	212	26	75	176	92	9	628	216	94	62	88	73	53	73	399	410	112	13	215	21
	'34	25	20	10	690	44	101	14	36	110	52	3	298	104	41	35	45	27	33	35	270	228	51	4	98	9
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	'30	8	11	10	773	48	172	12	16	53	19	3	155	53	35	19	32	10	21	27	200	96	78	9	61	15
	'29	9	21	3	1077	43	128	12	6	22	21	8	294	64	40	28	28	11	31	35	172	85	62	6	77	7
	'28	10	13	1	732	22	60	5	3	14	12	3	113	32	16	8	16	8	8	14	42	31	34	3	47	4
	Before '28	1		1	241	12	18		2	9	6	3	33	22	6	5	15	6	2	6	22	13	12	4	14	3
	Unid.*	1		5		2	3	1	24	8	15		31	1		2		31	1	487	4	201			8	1
	Total	548	450	294	17522	1065	3708	398	1298	2990	1524	146	9995	2672	1013	685	1023	836	796	1706	6649	5937	1727	227	2499	272
LINCOLN	6 Mo. '41	144	65	88	1190	141	386	33	187	522	243	58	1145	310	224	188	131	306	87	91	632	1140	255	139	389	61
	'40	131	109	104	2413	214	417	40	175	772	251	73	1565	418	263	250	181	355	97	162	688	1163	312	143	506	89
	'39	111	88	70	2502	223	298	33	179	623	281	81	1397	387	239	163	189	340	91	133	624	1133	310	98	429	82
	'38	78	98	41	2560	168	238	29	146	561	215	70	1019	327	212	158	121	235	68	73	473	862	266	51	352	85
	'37	152	164	90	3302	288	415	50	233	828	391	115	1682	596	364	232	208	273	135	164	868	1599	509	92	532	183
	'36	67	49	35	2127	144	178	25	117	374	133	73	896	327	194	131	102	132	53	87	505	746	239	44	225	99
	'35	4	4	2	269	12	36	2	16	27	9	2	121	25	8	7	13	14	4	7	78	51	17	4	25	2
	'34	1	5	2	224	12	31	3	15	44	16	3	139	29	13	9	21	6	4	6	105	61	27	3	25	
	'33	4	1		205	5	36	1	7	14	6		84	16	8	8	15	5	5	5	55	34	17		20	1
	'32	5	6	2	316	14	34	3	15	33	8	1	96	24	16	8	10	18	7	4	92	38	39		24	4
	'31		6	2	260	8	29	2	6	46	4	1	51	24	9	5	12	4	9	10	60	35	17	4	13	3
	'30	7	8		241	9	32	1	11	23	8	4	54	16	22	9	19	9	9	6	40	41	21	1	8	4
	'29	3	7		265	13	19	1	8	25	4	1	46	11	9	3	11	5	7	12	33	18	17	2	10	3
	'28	3	2		150	8	4	1	4	7	2	3	26	6	9	3	4	1	2	5	9	6	6	3	1	3
	Before '28	2	5	3	334	17	12	1	5	18	4	4	28	10	7	6	8	5	7	5	13	17	14	1	10	7
	Unid.*	4		13	2	2	3		16	15	16		15		2	1	3	69	1	257	3	273	1	3	19	1
	Total	716	617	452	16360	1278	2168	225	1140	3932	1591	489	8384	2526	1599	1181	1048	1777	586	1027	4279	7217	2067	588	2568	627

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

AND YEAR OF MANUFACTURE—*Continued*

Model		Neb.	Nev.	N. H.	N. J.	N. M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.†	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
FORD	6 Mo. '41	5 41	424	1204	13559	1804	28657	13037	2692	30078	6805	4139	24498	1518	5571	2470	10175	36102	1704	1037	11243	5225	5357	12859	1245	495218
	'40	6470	549	1764	12758	1703	31038	11529	2967	28160	10783	4168	24678	2315	7081	2993	9331	36757	1739	1031	11515	5623	4455	11453	1391	503859
	'39	5594	464	1559	9409	1540	24079	9859	2416	21718	10693	3281	20264	2160	6169	2735	8034	30593	1721	884	9075	4071	3426	10072	1220	417136
	'38	5110	393	1095	8671	1224	22065	7963	2449	14714	8804	2681	16246	1524	4168	2410	4780	23761	1297	715	6782	3452	2297	8964	992	325207
	'37	9075	684	2515	21487	2228	57680	14973	4096	56676	14079	7534	36799	3939	8921	5670	10341	40313	3184	1703	13586	11353	6741	21736	2007	757924
	'36	9481	950	2667	19564	2487	58516	13880	3346	50574	14228	6675	35115	3951	8973	4329	9369	40387	3534	1775	12719	13632	6375	18734	2108	730143
	'35	9349	777	2498	18648	2001	52695	14319	4071	37720	14062	6025	31028	3773	7421	4304	8514	32089	2765	1539	11561	9582	5004	18504	1625	642125
	'34	5572	495	2055	11958	1618	35785	11531	2141	24396	9610	3843	22703	2671	8330	2610	6393	23526	1895	1145	7631	6219	3740	9521	1034	435340
	'33	2453	178	1026	5327	693	18443	4248	1112	10149	4011	2176	9578	1262	2393	1142	2072	9879	762	557	2973	3378	1527	4384	439	188235
	'32	2288	197	925	4529	620	14463	3570	967	8973	3146	1846	7924	963	1936	1049	2052	7344	591	559	3011	2744	1382	4159	365	163933
	'31	7868	468	2400	12296	1453	34275	16965	2853	21280	6791	4782	27690	3203	14992	3175	8075	20351	1719	1610	7937	6953	3817	9373	999	449406
	'30	12668	689	1799	14237	2189	37461	18683	5120	31121	13612	7986	35970	2195	13558	6539	9598	25279	3317	1411	9623	13474	5221	17855	1329	615129
	'29	18712	767	1527	6545	3120	20153	15188	9128	31451	18732	11296	40988	947	12023	8733	11623	41812	3521	1315	8594	16136	4661	18900	1580	658256
	'28	5198	194	327	1397	812	4039	6180	2904	7292	6689	3235	12807	181	3161	2965	1610	10324	857	227	2743	4757	1134	5944	398	186739
	Before '28	6166	81	183	795	474	3595	4005	4655	7263	4745	2479	11759	83	3098	2683	2382	15535	236	200	2213	2977	795	4219	176	178449
	Unid.*	45	2	52	46	15	271	195	11	455	264	5	610	16	37	13	2036	1500	4	14	80		30	170	6	61990
	Total	111895	7312	23596	161226	23981	443265	166125	50928	382020	147054	74151	358657	30651	103051	55019	107435	398932	23896	15781	121301	109861	55962	177037	16930	6814386
GRAHAM-GP.	6 Mo. '41	2	3		32		271	1		81	2	41	53	2			4	2	6		12	27	9	14	1	1169
	'40	11	6	2	30	2	61	1	1	142	4	37	72	3	4	1	1	17	3	1	10	22	19	49	8	1265
	'39	20	11	6	139	3	363	6	4	433	11	115	228	15	6	7	22	75	20	1	44	76	43	122	10	3676
	'38	19	11	14	122	5	261	5	8	318	14	141	251	11	12	15	16	75	33	4	33	86	35	86	7	3423
	'37	45	34	85	623	19	1172	75	10	1618	60	506	1121	98	26	20	86	227	172	33	120	419	204	399	36	14019
	'36	56	32	61	397	11	1037	82	32	1171	102	499	996	50	15	16	80	229	199	16	143	428	142	354	39	12963
	'35	60	15	72	519	13	1553	128	28	1330	128	567	1096	69	34	16	157	261	165	25	157	396	89	332	25	13655
	'34	42	6	56	207		817	65	4	656	73	232	533	50	32	10	85	125	76	21	123	220	50	167	7	7503
	'33	41	5	31	286	3	1000	39	4	454	34	154	606	37	11	7	31	25	45	27	55	287	53	134	6	6391
	'32	31	9	35	207	2	621	15	9	254	21	134	470	34	7	18	40	43	30	11	41	139	34	122	9	5236
	'31	56	18	16	226	14	758	25	18	351	29	201	613	43	19	19	33	111	44	16	50	265	103	203	12	6831
	'30	88	14	39	271	6	836	41	42	448	47	320	942	30	15	30	42	121	63	33	43	415	70	230	5	9092
	'29	164	20	43	289	26	825	31	73	673	101	261	1140	50	19	81	60	161	112	33	50	575	43	333	16	12048
	'28	131	12	13	97	5	222	6	36	264	28	137	516	8	5	60	14	41	40	14	19	309	13	172	10	8089
	Before '28	31	6	9	51	8	85	8	32	101	18	81	269	9	3	17	10	6	10	5	2	158	7	63	7	2268
	Unid.*	1			1		10	1		8	1		7				16	13		1	1		1	6		985
	Total	798	202	482	3497	117	9892	529	301	8300	673	3426	8913	509	203	317	702	1599	1028	252	924	3931	926	2378	193	108022
HUDSON	6 Mo. '41	361	64	194	2583	130	4734	1212	81	5449	321	842	4741	283	646	97	609	2110	329	196	955	1572	787	2133	177	69612
	'40	427	62	366	2330	156	5364	1346	148	6075	709	648	5003	421	973	139	694	2559	315	216	972	1243	802	2253	230	76854
	'39	283	43	293	1321	90	3577	974	93	2710	675	388	3200	278	633	129	363	1543	245	137	576	736	332	1118	141	44751
	'38	323	51	204	1290	105	3257	679	144	2157	551	563	3039	158	415	141	398	1703	174	133	453	920	306	975	136	37828
	'37	104	33	103	740	47	1965	197	31	1334	206	287	1337	100	97	34	186	669	103	105	186	545	112	398	59	18598
	'36	131	40	116	690	40	2025	198	42	1501	208	390	1445	116	79	58	102	581	140	87	175	661	143	488	60	19925
	'35	143	29	96	482	47	1555	196	41	1106	193	268	1161	101	68	66	130	374	97	71	171	443	92	451	59	15957
	'34	140	22	124	589	24	1626	229	37	864	194	188	1115	113	99	43	96	310	102	69	165	413	93	331	50	14542
	'33	6	3	12	81	3	274	13		114	8	13	105	14	10	2	10	22	5	17	18	13	5	40		1672
	'32	22	3	24	182	2	525	24	7	181	13	35	233	38	15	4	15	44	12	23	34	63	12	100	5	3398
	'31	72	9	61	349	6	949	76	27	341	38	109	541	41	28	24	32	84	51	54	59	146	31	223	30	7139
	'30	45	12	31	315	6	744	68	30	456	60	180	579	27	22	44	28	63	54	41	43	189	39	234	11	7107
	'29	89	34	8	270	12	567	56	44	443	76	172	596	28	30	37	37	66	60	41	38	310	9	230	20	7464
	'28	40	7	7	84	7	204	20	31	139	37	69	241	6	17	18	9	27	34	17	14	114	13	114	7	2788
	Before '28	68	8	8	93	6	194	31	50	163	39	93	287	11	11	35	13	27	15	18	13	144	10	167	9	3582
	Unid.*			5	1	1	12	1		20	7		12	1			18	20		2	1		2	15		1961
	Total	2254	420	1672	11400	682	27572	5320	806	23053	3335	4245	23685	1736	3203	876	2740	10207	1736	1232	3881	7522	2793	9343	993	332945
HUPMOBILE	6 Mo. '41	2			5		44	1		40		7	10	1	1		5	4			5	2		9		322
	'40				1		7	3		3		2	5		1			1	1	1	2			10		124
	'39	2		2	18		152	3	2	34	2	30	62	6	1	2	9	13	12	1	6	15	5	12	1	973
	'38	2		4	59		127	3		51	9	55	102	9	3	1	24	34	10	2	22	42	8	22	1	1310
	'37	3			8	2	13			35	2	2	12	1	1		3	8			1	14	2	3	2	319
	'36	33	1	5	98	2	157	5	1	128	25	33	129	7	13	8	26	64	11	1	21	55	8	34	1	1751
	'35	83	2	31	281	13	578	41	7	347	32	72	409	59	37	23	69	182	28	16	71	126	46	179	8	5742
	'34	18	3	10	155	13	544	43	9	352	60	34	256	62	40	17	37	99	16	12	51	45	29	152	1	4291
	'33	14	1	19	212	3	756	12	5	235	17	26	289	54	26	15	15	55	6	12	44	30	12	50		3990
	'32	26	4	18	265	3	818	18	5	322	15	19	351	63	26	10	52	78	12	27	81	73	28	124	11	5012
	'31	75	7	39	402	4	1136	32	11	439	28	74	770	92	49	34	90	124	27	55	111	378	35	135	26	8712
	'30	102	8	32	331	9	772	25	15	403	36	142	675	53	32	60	62	120	28	35	72	490	27	158	15	7619
	'29	112	9	28	489	14	1324	49	29	637	89	168	838	76	30	67	78	187	75	53	128	487	40	220	16	10984
	'28	109	6	22	329	18	858	52	23	371	76	164	651	46	20	67	20	129	38	26	85	391	26	155	13	8275
	Before '28	99	10	11	160	8	432	34	71	403	72	202	678	24	12	97	30	95	29	14	60	462	28	133	8	7704
	Unid.*	1			1	1	8			9	2		7	1			4	11			1			2	2	586
	Total	681	51	221	2814	90	7726	321	178	3809	465	1030	5244	554	292	401	524	1204	291	255	764	2610	291	1399	105	67614
LA SALLE	6 Mo. '41												3													3
	'40	48	55	51	1223	30	3165	221	17	1290	145	135	1518	129	70	34	172	691	58	35	194	203	138	372	35	20187
	'39	54	42	75	1177	35	2969	234	15	1077	226	196	1536	178	78	33	178	620	50	41	181	199	115	316	23	19971
	'38	33	34	56	812	21	1875	138	8	660	172	85	951	114	49	21	111	485	37	41	121	140	62	182	17	13127
	'37	75	62	74	1681	33	3996	238	32	1513	223	216	2008	212	73	24	206	652	60	88	216	353	126	494	19	28992
	'36	29	22	38	676	17	1446	92	6	653	125	135	835	100	38	11	77	304	23	27	101	153	61	179	7	11400
	'35	26	15	32	468	11	965	68	8	452	93	61	577	61	29	9	60	194	27	19	73	98	46	162	7	8335
	'34	19	4	15	284	5	618	45	6	286	51	37	337	24	13	4	26	119	17	11	42	59	33	89	4	4511
	'33	1	3	3	209	1	460	7		126	18	11	193	40	3	1	10	26	8	8	12	12	5	44		2443
	'32	9	5	4	176	5	365	11	1	88	11	12	173	39	5	2	16	28	3	6	7	30	3	30		2074
	'31	10	5	11	313	6	596	17	1	140	16	29	291	44	7	3	14	34	7	15	17	36	8	32	2	3475
	'30	14	4	12	227	7	488	16	6	110	24	51	288	29	6	8	28	28	8	17	17	62	7	30	5	3423
	'29	14	7	15	188	6	401	21	8	101	27	55	269	31	10	2	23	36	16	19	18	73	10	36	2	3678
	'28	9	1	7	74	5	153	10	6	40	20	36	127	11	10	5	6	15	12	7	11	37	3	20	2	1878
	Before '28	7	4	2	23	2	52	6	1	14	5	21	54	1		3	3	8	5	1	3	17	1	10		699
	Unid.*			1	1		10			17	1		10		1	1	15	17					1	3		904
	Total	348	263	396	7532	184	17559	1124	115	6557	1157	1080	9170	1013	392	161	945	3237	331	335	1013	1472	619	1999	123	123105
LINCOLN	6 Mo. '41	128	48	38	812	71	1729	253	28	771	182	219	1067	69	92	30	198	843	77	48	196	175	136	310	51	15704
	'40	146	64	74	796	87	2050	280	32	949	305	205	1222	149	131	56	203	985	82	44	277	228	143	375	60	19854
	'39	115	51	60	659	58	1845	243	31	811	366	207	1088	109	131	47	193	919	85	37	253	207	98	325	63	18075
	'38	148	40	48	538	52	1584	215	42	643	252	204	933	107	110	24	124	701	68	32	197	239	81	262	48	15196
	'37	194	69	74	834	98	2672	314	59	1313	328	379	1603	179	145	70	221	928	130	48	302	458	152	530	87	24582
	'36	103	34	50	480	44	1531	134	40	618	210	183	785	71	55	42	80	442	80	31	136	252	70	242	55	12871
	'35	4	3	4	73	1	251	8	2	54	18	7	64	17	1		12	22	2	2	13	4	3	7		1331
	'34	3	6	8	101	2	319	15	3	58	9	15	96	14	1		17	19	2		9	15	8	14	1	1539
	'33	5	3	4	59	4	172	7		30	4	12	49	7		2	6	11	1	3	6	7	1	8		953
	'32	9	6	2	107	3	219	7	1	49	13	16	105	13	3	3	11	11	5	1	5	24		9	1	1440
	'31	4	3	3	73		188	5	7	37	2	12	66	14	3		9	9	3	1	4	17		9	1	1038
	'30	14	2	4	61	1	150	5		42	11	16	28	8	2	3	5	15	4	1	6	18	7	7		1013
	'29	13	1	2	37	1	115	4	2	43	3	21	48	2	3	1	5	14	5		6	22	1	3		885
	'28	2	3		19		51	4		13	1	8	31	4	1			2	4	1	1	19	1	5		436
	Before '28	8	1	3	19		38	5	5	16	4	15	41	4	1	2	8	13	4	1	9	15	7	7	3	772
	Unid.*	2		1	7		10			87	6		11	2			18	15		1	3			3		885
	Total	898	334	375	4675	422	12922	1499	252	5534	1684	1517	7237	769	679	280	1110	4949	552	249	1423	1710	706	2116	358	116704

†—Year model estimated. Unid.*—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

CARS IN USE BY MAKES, STATES

Model		Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
MERCURY	6 Mo. '41	1001	217	388	4191	795	1031	124	397	1310	1493	413	4818	1684	1248	905	62	1190	237	372	1603	7690	1575	573	1591	427
	'40	740	270	440	7413	1013	1245	129	481	1624	1464	367	5805	1824	1481	946	775	1165	347	545	2127	6336	1901	545	1977	453
	'39	476	195	298	6634	775	925	94	543	1319	938	241	4312	1194	1189	853	532	843	290	443	1383	4354	1350	340	1470	332
	'38																									
	'37																									
	'36																									
	'35																									
	'34																									
	'33																									
	'32																									
	'31																									
	'30																									
	'29																									
	'28																									
	Before '28																									
	Unid.*	14	4	48	21	5	4	1	17	22	40	16	27	23	3	3	6	71	1	224	13	490	4	15	42	1
	Total	2231	686	1174	18259	2588	3205	348	1438	4275	3935	1037	14962	4725	3921	2707	1940	3274	875	1590	5132	19370	4830	1473	5080	1213
NASH-Ajax-LaF	6 Mo. '41	237	181	199	3364	469	1260	89	260	775	656	332	7051	1930	1013	815	485	606	399	851	1944	4878	1736	230	1566	422
	'40	368	225	238	3326	502	1028	76	208	965	657	264	6167	1709	983	670	528	542	324	511	1702	2720	1557	226	1664	456
	'39	295	174	119	3380	382	727	58	181	737	508	169	4944	1227	824	461	408	281	291	579	1789	1913	1133	166	1705	401
	'38	171	119	137	2273	329	565	49	177	532	360	104	3017	636	739	432	304	229	202	295	1348	1154	1149	103	978	260
	'37	317	303	191	4267	936	1411	93	141	691	613	340	7994	1853	1387	915	596	522	517	424	3165	3104	1827	176	1263	646
	'36	260	249	85	3854	664	931	63	160	485	422	271	4106	973	1163	703	325	450	319	296	2022	1386	1135	162	858	560
	'35	72	91	20	3862	235	395	20	75	203	123	62	1749	756	350	179	172	219	135	293	829	472	353	85	517	186
	'34	76	95	37	1823	277	492	28	97	229	154	79	1569	481	386	292	202	305	319	228	1661	518	419	97	436	170
	'33	15	13	12	826	66	190	7	25	44	25	13	411	103	79	70	45	80	84	71	482	111	93	31	147	19
	'32	35	68	27	1281	147	475	22	86	158	103	51	890	208	275	150	109	174	201	105	964	339	389	46	311	52
	'31	44	58	44	1895	183	300	16	45	125	76	81	753	265	267	168	110	136	212	163	521	269	315	45	366	58
	'30	39	82	32	2169	239	344	21	28	108	73	88	897	300	400	270	110	129	197	133	482	293	427	66	375	75
	'29	68	162	85	3605	478	496	46	47	233	126	194	1748	579	992	725	218	189	298	162	588	603	1018	102	615	269
	'28	54	74	37	2840	155	124	16	14	46	61	75	691	364	352	276	115	62	65	97	119	194	314	71	332	69
	Before '28	39	68	27	3005	186	139	19	12	81	62	99	630	375	355	208	76	51	89	129	122	317	425	53	293	64
	Unid.*	5	7	41	12	3	8	1	42	12	47		69	7	3	3	7	122	2	969	8	1193	6	5	77	1
	Total	2095	1969	1331	41782	5251	9105	624	1598	5424	4066	2222	42686	11766	9568	6337	3810	4097	3654	5306	17726	19484	12296	1669	11553	3708
OLDSMOBILE	6 Mo. '41	1402	521	819	12249	1472	4702	699	2045	3023	2689	691	16941	7130	2910	2732	2170	2149	1270	2455	11088	16487	3525	920	4613	932
	'40	1078	494	693	16101	1298	3264	596	1302	2597	2357	645	14532	5663	2694	2309	1980	1715	1210	2383	9239	9897	3044	983	5296	865
	'39	834	397	569	11845	1134	2408	423	803	1838	1742	390	9138	2937	2049	1663	1460	1253	775	1503	6703	6141	2095	531	3417	652
	'38	533	312	260	9427	776	1666	298	490	1505	1043	321	6281	2552	1338	1146	969	958	594	868	4237	3575	1611	302	2414	408
	'37	1014	628	446	18724	1933	3621	594	1140	2630	1994	623	14246	6242	2722	2248	1828	1367	1109	1599	8231	10863	3153	470	4085	697
	'36	781	571	430	18525	1815	3325	574	1276	2525	1651	583	14056	5708	2888	2019	1692	1440	1201	1387	8364	9893	3131	376	4017	641
	'35	623	396	321	14239	1117	2062	372	677	1367	1036	328	9095	4527	2170	1842	1175	775	711	1065	4770	5983	2442	234	2991	463
	'34	385	227	191	5654	679	1317	211	303	741	669	175	4579	2077	1124	1015	675	435	399	507	2710	3341	1160	136	1815	222
	'33	73	87	55	2012	187	633	87	122	200	144	62	2030	808	485	347	228	103	212	220	1247	1317	578	46	732	116
	'32	25	58	31	1124	84	316	47	66	130	99	37	908	441	215	170	109	77	128	104	696	687	378	26	368	33
	'31	75	101	48	1946	245	564	98	98	240	186	66	2093	1088	729	361	264	98	313	147	1017	1626	1019	39	690	74
	'30	51	91	41	1693	205	356	62	57	141	75	81	1292	776	607	313	199	69	211	145	446	993	595	32	572	62
	'29	39	183	44	2746	364	250	87	22	133	77	116	1227	1062	726	570	232	69	178	132	265	1252	879	41	669	109
	'28	25	85	25	1449	243	83	46	12	53	45	78	566	540	384	269	135	26	54	47	63	461	367	32	348	94
	Before '28	19	48	22	829	150	33	33	1	49	22	70	306	391	151	152	61	23	42	42	29	292	341	11	207	60
	Unid.*	16	1	175	20	10	21	4	185	40	125	3	157	28	3	13	5	234	8	4328	25	2240	5	10	153	5
	Total	6973	4200	4170	118583	11712	24621	4231	8599	17212	13954	4269	97447	41970	21195	17169	13182	10791	8415	16932	59130	75048	24323	4189	32387	5433
PACKARD	6 Mo. '41	412	227	122	3268	343	1572	159	559	1072	809	137	3982	1056	423	306	484	447	283	770	2363	3213	677	150	784	133
	'40	562	337	264	6334	638	2583	262	691	1881	1308	248	8191	1788	769	578	764	705	449	1296	3801	4493	1318	276	1687	304
	'39	259	155	114	5973	280	1078	125	390	910	603	74	3571	657	310	239	381	373	212	1000	2039	1782	606	125	1052	107
	'38	257	174	106	5060	360	1351	143	379	1104	611	68	3973	755	467	314	390	355	224	749	2176	1643	882	77	1050	179
	'37	548	341	220	7998	799	3390	322	7065	2113	1432	176	8248	1863	988	712	1138	635	607	1198	5542	5461	1637	193	2033	332
	'36	238	157	93	6532	448	1588	154	545	1065	639	79	4251	1342	479	326	533	315	318	700	2969	2173	915	60	1110	159
	'35	91	92	39	3468	204	764	77	236	503	308	40	1942	545	286	173	255	158	147	347	1498	966	500	41	539	90
	'34	21	10	4	583	46	261	18	75	145	81	6	484	82	48	33	63	34	44	56	450	195	123	9	103	6
	'33	10	7	5	720	37	141	13	31	76	43	2	313	97	24	17	57	24	18	80	293	132	66	8	84	2
	'32	31	34	9	936	66	373	30	121	216	90	5	627	128	101	50	113	57	68	91	701	263	227	11	177	10
	'31	20	17	2	1040	57	217	19	61	101	58	7	310	94	45	23	55	28	47	83	321	156	120	12	91	6
	'30	20	39	8	1649	81	341	32	55	169	47	23	470	141	79	37	93	37	51	97	412	230	255	16	135	10
	'29	20	59	8	1941	59	305	27	41	107	61	12	473	142	70	51	93	44	64	70	306	203	215	13	110	17
	'28	17	43	2	1410	79	168	19	16	83	52	15	277	84	61	30	60	35	36	51	153	98	118	15	69	14
	Before '28	16	36	10	1489	64	112	17	18	88	42	21	236	77	51	30	45	22	32	41	101	114	108	13	63	18
	Unid.*	3	3	35	3	6	13	2	75	23	69		77	6	2		2	111	2	1644	12	1166	2	6	54	
	Total	2525	1731	1041	48404	3567	14257	1419	4358	9655	6253	913	37425	8857	4203	2919	4526	3380	2602	8273	23137	22293	7769	1025	9151	1387
PLYMOUTH	6 Mo. '41	4229	1357	1580	18251	2592	7837	791	4812	7525	6963	1172	30714	15926	6963	4910	4894	4926	1987	5958	16190	29753	8208	2294	9654	1412
	'40	3573	1416	1665	32424	2497	6875	735	3727	6798	5600	1365	30362	14175	6742	4638	4527	4425	1824	7184	14506	19413	9232	2377	11472	1654
	'39	3700	1209	1610	23692	2788	6770	711	3676	6515	5014	1211	27210	9564	7544	4351	4531	4247	1804	5040	15019	17569	8781	2163	10289	1480
	'38	1936	852	1150	22808	1882	4184	466	2017	4104	2603	885	16490	8805	5191	3503	3351	3162	1372	3712	8801	7891	6862	1348	7497	996
	'37	4165	2154	2357	34501	5111	9338	975	3217	7249	6304	2012	34512	16752	8918	7231	6656	4863	2481	5089	16312	27385	11806	2753	12251	2023
	'36	3386	1793	1955	38726	5204	8584	925	2881	6782	5615	2089	33484	17837	9655	7239	6164	4249	2153	5360	15534	20316	11675	2650	11379	2322
	'35	2646	1208	1426	31138	3034	5517	647	1698	4297	4177	1442	20970	13329	7658	5451	4512	2548	1527	3786	9013	11759	8304	1519	7992	1883
	'34	2498	1112	1290	21739	2449	5104	544	936	4065	4003	1082	15960	10004	5034	4522	4235	2475	1493	2687	8040	9298	5001	1512	1455	1140
	'33	1744	626	819	20162	2370	5264	448	580	3202	2893	678	14164	8562	3948	3446	4007	1478	1402	1710	7504	6991	4714	810	7646	835
	'32	660	316	551	7770	1106	2691	208	223	1911	870	304	6176	3091	1884	1303	1619	525	916	711	3595	3857	3373	193	3287	309
	'31	274	128	142	5143	467	276	64	45	455	277	174	1540	2220	859	542	793	221	319	464	444	938	1174	106	1392	187
	'30	208	105	309	1781	412	247	64	14	305	177	206	1453	1179	1162	635	603	183	339	205	311	959	1586	138	1055	179
	'29	264	120	148	2129	424	180	77	12	198	219	217	1579	987	1036	842	456	223	212	156	141	1009	1480	192	990	322
	'28																									
	Before '28																									
	Unid.*	51	10	799	71	42	67	11	674	207	445	22	499	161	22	47	85	1374	28	10840	85	5537	22	84	564	23
	Total	29334	12406	15801	260335	30378	62934	6668	24312	53613	45160	12859	235113	122592	66616	48660	46431	34899	17857	52902	115495	162675	82218	18139	92923	14765
PONTIAC	6 Mo. '41	1598	624	973	14953	1790	5843	841	2988	2671	2781	599	19557	8868	3293	3120	2440	2511	1876	3024	10993	26500	4370	1262	4536	526
	'40	1061	426	956	20417	1439	4609	647	2534	2357	2101	525	16573	6042	2969	2227	1992	1723	1475	3426	8006	13706	3510	914	4726	376
	'39	898	252	642	13239	885	3073	426	1238	1670	1185	236	10476	2978	2500	1547	1454	1293	1052	1983	5776	8054	2442	730	3264	302
	'38	610	243	367	9476	636	1703	297	695	1288	721	278	6841	2334	1653	1389	1010	854	782	1090	3205	4743	1863	364	2232	234
	'37	1298	588	759	19132	1773	4763	674	1448	2592	1830	626	18378	7500	3887	3251	2240	1191	1614	2245	8334	15412	4715	633	4700	621
	'36	861	449	747	16472	1518	3462	490	972	1936	1208	562	11963	5791	3032	2662	1726	1108	1168	1805	6240	10220	3492	543	4029	494
	'35	635	406	505	10062	1265	2060	348	572	1443	1043	376	8282	4092	2430	1926	1151	766	756	1382	3684	7582	2716	390	2679	494
	'34	299	213	160	3546	624	1661	201	353	980	781	150	4481	1742	1206	1010	676	318	577	593	2736	3074	1001	244	1630	211
	'33	309	176	139	3816	591	2075	222	389	844	629	116	4287	1522	1058	1125	648	215	561	693	3354	3147	1280	185	1666	276
	'32	119	87	69	1917	275	848	96	119	366	254	55	1445	817	561	548	300	171	400	322	1544	1008	725	65	768	147
	'31	182	85	126	3013	521	1305	160	102	651	385	111	2859	1663	1517	991	546	218	664	491	2062	1982	1662	102	1420	210
	'30	60	96	74	2318	302	548	92	43	235	118	114	1555	737	1038	747	292	128	399	287	691	938	1226	52	719	87
	'29	70	157	125	3692	489	417	130	23	241	113	151	2118	1500	1314	1124	376	180	250	227	409	1721	1923	86	990	223
	'28	60	83	69	2244	323	165	98	11	164	97	79	1192	1116	916	997	258	93	111	71	106	1111	1286	74	818	157
	Before '28	29	45	20	861	77	64	37		63	38	47	450	497	242	325	91	39	46	38	30	632	499	33	227	54
	Unid.*	16	3	255	13	10	26	5	226	59	155	3	207	25	4	15	9	257	16	4677	27	3292	10	14	142	1
	Total	8105	3933	5986	125171	12518	32622	4764	11713	17560	13439	4028	110664	47224	27620	23004	15209	11065	11747	22354	57197	103122	32720	5696	34546	4413

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

AND YEAR OF MANUFACTURE—*Continued*

Model		Neb.	Nev.	N. H.	N. J.	N. M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.†	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
MERCURY	6 Mo. '41	631	109	174	2484	411	5012	1434	243	4191	732	705	3898	246	615	250	1013	3785	286	152	1012	696	580	1864	241	66664
	'40	718	139	262	2329	342	6399	1289	329	3838	1104	693	4067	417	773	331	821	3557	318	157	1197	846	480	1775	276	13870
	'39	547	100	208	1783	238	4956	1037	250	2827	1168	535	2987	324	524	266	585	2361	202	115	895	581	369	1298	231	56227
	'38																									
	'37																									
	'36																									
	'35																									
	'34																									
	'33																									
	'32																									
	'31																									
	'30																									
	'29																									
	'28																									
	Before '28																									
	Unid.*	2		3	14	2	78			28	16		26	3	2	4	42	69					5	16	1	1426
	Total	1898	348	647	6610	993	16445	3760	822	10884	3020	1933	10978	990	1914	851	2461	9772	806	424	3104	2123	1434	4953	749	198187
NASH-Ajax-LaF	6 Mo. '41	339	63	152	2735	151	5261	472	258	5577	403	1296	5325	430	135	241	940	1499	256	152	369	1611	529	4599	127	64688
	'40	322	77	166	2139	106	4137	437	179	4433	731	931	4575	359	275	243	572	1687	199	111	286	1099	428	3638	147	54893
	'39	298	80	210	1642	65	3648	357	159	2743	500	708	3529	377	218	205	482	998	149	126	226	776	257	2793	117	43515
	'38	274	57	140	1615	65	3163	354	142	1580	316	607	2975	177	123	166	352	820	135	99	302	562	162	2516	96	32465
	'37	452	165	353	2766	116	5881	426	187	4872	482	1253	5658	518	173	279	779	1220	290	202	393	1356	383	7072	157	69125
	'36	418	168	259	1499	83	4240	217	143	2573	363	1037	3828	314	81	251	431	919	354	143	305	946	363	2899	131	43867
	'35	194	32	151	658	30	1600	92	106	901	222	195	1210	116	23	90	182	265	154	56	174	175	113	1966	36	20194
	'34	168	37	220	1239	25	2940	159	61	1152	157	219	1704	259	56	96	172	328	153	61	150	198	175	1265	43	21757
	'33	35	7	55	327	5	1096	37	10	264	33	60	430	82	18	17	39	47	24	16	36	66	24	270	7	6067
	'32	106	11	113	1087	18	2873	62	23	627	67	258	1301	134	33	44	73	153	67	80	102	301	93	537	14	14343
	'31	125	10	110	670	19	1762	61	53	509	61	176	1017	94	26	50	76	156	87	61	65	229	50	716	19	12717
	'30	167	22	98	623	27	1670	57	76	593	94	251	1231	83	31	93	81	188	72	68	52	331	52	792	34	14143
	'29	521	36	160	1181	53	3143	127	293	1322	243	624	2777	112	68	236	171	537	123	187	106	803	159	1296	57	27981
	'28	284	12	44	287	26	693	46	171	463	157	233	980	27	38	165	48	174	59	43	69	319	26	870	14	11885
	Before '28	197	12	35	283	23	720	40	212	596	145	286	1087	27	27	143	41	148	83	33	45	428	34	788	28	12385
	Unid.*	3	1	4	7		23	4		37	12		41	4	3	3	64	53		2	1	1		39		2952
	Total	3903	790	2270	18758	812	42850	2948	2073	28242	3986	8134	37668	3113	1328	2322	4503	9192	2205	1440	2681	9201	2848	32056	1027	453457
OLDSMOBILE	6 Mo. '41	1129	174	601	9693	599	24592	3001	394	14878	1721	2442	16681	1307	1173	603	2236	8815	698	603	2682	3524	1957	6011	332	211480
	'40	919	179	836	7945	554	21560	2354	389	11747	2438	1718	14236	1562	1268	615	1745	7508	754	567	2260	2897	1562	4936	378	183160
	'39	789	151	687	5597	410	14681	1671	310	6892	1925	1134	10069	1075	675	478	1369	5230	519	468	1440	2122	920	3023	307	124642
	'38	555	138	400	4308	237	10995	1078	198	4651	1354	780	7130	766	382	256	847	4000	316	260	896	1667	603	2244	169	88114
	'37	1144	190	820	8521	438	19772	1805	317	11704	2409	1655	14184	1750	742	464	1736	6891	695	428	1701	3646	1338	5417	405	180379
	'36	1226	214	839	9080	336	20604	1633	294	12517	2114	1715	13720	1749	596	528	1376	6151	720	473	1811	3449	1357	5425	360	177156
	'35	942	133	478	5208	271	11535	1249	328	7349	1864	876	8896	907	554	475	909	3252	501	313	1028	1892	773	3509	250	114273
	'34	516	71	291	2996	151	7406	657	176	4052	931	459	5043	511	288	221	485	1551	202	168	455	1291	473	1846	122	61109
	'33	242	22	124	1677	53	4166	162	76	1449	249	174	2070	213	85	93	132	366	110	91	196	513	157	826	37	25414
	'32	124	14	71	904	17	2304	80	35	657	90	117	1127	112	58	54	93	139	33	72	101	252	60	378	25	13274
	'31	285	16	166	1580	36	4176	167	74	1797	154	289	2336	156	87	214	150	271	76	110	198	589	123	993	58	27326
	'30	326	15	91	864	34	2421	82	103	1352	164	269	1547	84	45	236	137	225	69	61	93	500	95	888	45	18911
	'29	548	36	80	533	54	1845	115	206	1763	270	471	2093	59	62	342	119	340	112	66	87	884	115	1034	61	22767
	'28	323	15	32	162	20	640	80	181	840	133	311	1095	11	24	254	58	194	109	26	58	459	58	483	38	11134
	Before '28	132	7	19	88	18	269	41	196	508	75	218	777	5	21	170	30	117	60	13	21	341	34	374	28	6966
	Unid.*	6		7	20	2	75	3		77	43	3	100	14	4	2	116	101		5	6		4	39	1	8442
	Total	9206	1375	5542	59176	3230	147041	14178	3277	82233	15934	12631	101104	10281	6064	5005	11538	45149	4994	3724	13033	24026	9629	37426	2616	1274547
PACKARD	6 Mo. '41	219	90	217	2716	76	6765	552	33	2868	244	571	4941	299	306	46	612	1729	207	206	714	963	567	962	65	49719
	'40	382	189	318	4529	124	10925	983	65	5090	601	691	8187	442	640	87	980	3164	354	370	1258	1333	810	1581	143	84773
	'39	179	73	238	2155	74	5111	526	31	1962	470	273	3895	385	358	63	461	1364	114	134	545	561	361	799	73	42822
	'38	277	76	141	2647	100	6364	524	44	2294	412	380	4472	329	330	75	414	1518	166	141	583	544	370	820	82	45950
	'37	429	159	358	5804	137	12826	1212	59	6459	695	793	10012	894	774	165	992	3033	351	306	1366	1591	821	1849	138	100214
	'36	279	75	198	2875	92	6856	499	26	3013	406	479	4812	408	298	96	436	1277	222	148	687	692	358	1378	55	52853
	'35	145	26	99	1496	31	3529	248	14	1258	274	200	2389	199	119	51	225	564	106	82	290	324	148	596	19	25741
	'34	10	5	14	472	3	1061	31		274	52	33	563	41	16	1	45	93	21	12	71	43	37	77	5	5960
	'33	21	3	8	301	5	641	30		234	28	26	374	32	11	3	18	60	17	8	42	42	12	70	3	4288
	'32	30	10	32	752	3	1499	61	5	476	50	64	936	64	24	8	54	111	38	34	83	109	37	141	7	9163
	'31	30	13	24	424	7	768	34	3	286	27	44	584	47	22	9	32	68	22	26	58	109	18	80	1	5726
	'30	62	9	14	639	14	1076	51	13	430	70	159	980	57	35	21	46	85	34	31	51	230	27	130	4	8795
	'29	43	17	23	470	10	826	51	18	326	74	133	857	47	35	22	42	80	52	26	45	239	24	122	3	8101
	'28	44	8	20	289	14	457	49	8	199	48	90	592	19	22	15	38	61	28	21	23	192	14	70	7	5339
	Before '28	62	12	12	196	16	286	31	15	173	37	125	531	17	19	22	26	64	32	13	28	201	11	75	5	4873
	Unid.*	1		1	6		22	2		32	7		53	4		1	51	64		2	3		1	10		3576
	Total	2213	765	1709	25771	706	59012	4884	334	25374	3495	4061	44178	3284	3009	685	4472	13335	1764	1560	5853	7173	3616	8760	610	457693
PLYMOUTH	6 Mo. '41	2661	477	1045	16604	962	41018	7861	1186	32384	2475	4101	34679	2304	3072	1128	6199	16315	1211	940	8545	5844	5344	8437	661	406151
	'40	2605	485	1427	13819	938	39547	5851	1308	28465	3855	3763	32226	2809	3435	1325	4743	14704	1376	882	6933	5911	4023	8513	721	388870
	'39	2743	431	1351	13797	996	39383	6606	1100	24829	3676	3086	31120	2819	3541	1349	4732	15669	1289	856	6650	5048	3336	7972	778	359625
	'38	2160	266	911	9618	806	26473	4101	816	13000	3688	1837	20409	1454	1768	1030	3100	11439	779	650	4262	3434	2200	5846	570	242485
	'37	4011	640	1650	17625	1429	43361	7695	1283	35489	5856	5306	42676	3724	3920	1660	6791	20466	1927	1156	7065	9076	4972	11681	1142	477016
	'36	4809	628	1655	16552	1379	41012	7080	1180	33449	5821	4986	40513	3765	3426	1828	5685	17598	2222	1188	7237	8489	5274	11141	1146	456000
	'35	3570	371	1123	10364	993	23899	5761	1386	21335	4723	3373	28312	2682	2397	1586	4683	11962	1421	829	4716	5511	3322	8597	783	311180
	'34	2461	260	905	9223	732	22112	5945	806	20078	4001	2787	23818	2466	2365	886	4168	10256	1118	649	3983	4492	2991	5843	523	256546
	'33	2150	204	858	8606	453	22832	3938	733	17051	2517	2393	19628	2187	1953	625	2836	7173	937	529	2720	3909	2125	5050	399	217809
	'32	854	86	638	4785	141	14255	1163	271	7224	821	1182	9107	1127	445	396	1029	1770	229	434	846	2085	783	2278	199	99597
	'31	620	29	134	796	90	2238	312	188	1853	402	318	2778	123	147	175	343	843	66	165	528	824	321	1336	98	33389
	'30	791	26	121	432	71	1688	239	255	1657	382	482	2809	99	114	369	317	837	84	153	250	852	219	1190	73	27325
	'29	967	27	67	352	98	1202	250	451	1451	457	680	3384	59	126	410	232	880	136	121	226	1338	120	1287	71	28005
	'28																									
	Before '28																									
	Unid.*	40		25	114	3	278	20	23	311	115	5	459	24	24	36	622	403	8	15	45	3	24	126	6	24499
	Total	30442	3930	11910	122687	9091	319298	56822	10986	238576	38789	34279	291918	25642	26733	12803	45460	130315	12803	8567	54006	56816	35054	79297	7170	3323477
PONTIAC	6 Mo. '41	1487	245	703	14935	505	29565	4656	377	19822	2125	3362	19820	1430	1576	388	2557	8450	914	802	3881	3695	2075	5873	297	258077
	'40	1170	198	835	11598	465	24366	3198	318	14318	2909	2480	15261	1428	1330	338	1697	6164	813	632	3201	3000	1484	4662	281	206883
	'39	836	116	684	7832	273	16632	2049	234	8583	2223	1195	10046	1081	936	269	1250	4042	372	371	2080	1764	824	2934	159	134380
	'38	615	99	366	5443	185	10903	1381	195	5285	1420	909	7003	543	532	230	851	3350	293	229	1190	1207	512	2178	124	89951
	'37	1540	252	792	10981	426	22254	2412	378	17007	3037	2325	15863	1504	1087	544	1517	5983	736	549	2507	3528	1397	5834	368	213025
	'36	1362	221	639	7753	294	16069	1504	284	12082	2654	1845	11568	1140	651	473	1323	5028	477	429	1953	2506	1164	4594	340	159308
	'35	1169	96	406	4848	310	10698	1409	340	7554	2053	953	8224	784	649	459	1027	4007	431	321	1319	1449	636	3404	305	110096
	'34	552	47	277	3398	123	7418	975	157	2881	1077	443	4734	616	401	206	495	2005	162	217	779	715	319	1686	128	58278
	'33	526	46	333	4213	125	10178	927	216	2695	865	424	5282	798	370	169	349	1699	166	216	828	768	323	1658	103	62600
	'32	271	13	228	1676	46	4223	251	72	1534	397	172	2243	370	134	62	160	546	73	152	407	370	168	804	41	27439
	'31	593	18	320	1863	81	5198	562	213	3095	572	477	3791	534	250	191	263	781	138	182	641	783	317	1691	71	45653
	'30	391	12	188	839	41	2428	215	163	1725	352	409	2184	178	99	160	176	510	122	122	295	513	155	1147	32	25322
	'29	956	19	105	582	54	2110	229	396	2337	613	705	3053	134	119	350	179	795	165	77	259	831	139	1738	59	34053
	'28	958	23	76	310	46	1016	192	490	1297	512	547	2316	43	84	419	102	527	72	57	174	682	56	1376	48	23122
	Before '28	243	8	34	114	20	301	59	193	483	141	227	868	8	24	137	25	176	21	33	62	304	18	480	11	8454
	Unid.*	3		5	27		120	10		79	49	1	121	6	6		163	95		7	13	1	7	56	2	10238
	Total	12672	1413	5991	76412	2994	163679	20029	4026	100777	20999	16474	112377	10597	8218	4395	12134	44158	4955	4396	19589	22116	9594	40095	2369	1466879

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

CARS IN USE BY MAKES, STATES

Model		Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
STUDEBAKER	6 Mo. '41	1069	348	298	6919	668	1627	221	884	1524	1341	647	7369	5435	2026	895	840	1361	371	1174	2772	4246	2292	279	1750	587
	'40	1070	409	522	11506	789	1356	221	855	1742	1263	667	8064	4797	1905	981	874	1327	336	1492	2376	3185	2459	586	2703	718
	'39	290	245	242	10713	575	1095	156	665	1227	923	437	5770	3378	1440	741	641	708	310	958	2235	2257	1799	322	1908	526
	'38	142	127	79	5924	305	701	80	393	513	394	250	2913	1757	791	478	306	434	211	380	1110	833	1005	60	670	236
	'37	332	269	212	7733	763	1636	173	584	920	868	553	6200	3921	1623	978	741	631	423	597	2610	2060	1976	103	1378	427
	'36	225	241	107	8797	496	875	110	346	492	498	372	3703	2976	1036	669	436	395	375	600	1546	1102	1235	83	1104	347
	'35	134	172	81	4954	333	627	77	225	359	442	215	2319	1663	858	590	308	327	203	333	1019	784	932	62	765	307
	'34	208	214	106	4904	416	822	91	232	501	424	224	2275	1344	887	760	404	266	2 0	294	1576	973	1052	85	865	230
	'33	60	63	21	3911	169	446	35	70	150	189	38	851	735	226	257	210	85	121	211	615	341	443	23	349	84
	'32	80	90	45	4137	250	518	50	91	210	200	50	1112	763	326	317	262	167	239	178	845	580	611	32	440	65
	'31	81	113	35	3810	332	463	57	77	210	201	100	1030	648	514	295	215	138	260	160	677	519	731	40	374	79
	'30	61	143	30	3711	211	434	45	45	149	116	108	1053	579	480	307	197	91	217	162	443	492	611	43	286	65
	'29	55	217	29	4372	219	289	41	31	106	92	76	951	707	342	286	184	77	108	113	289	525	523	32	285	86
	'28	38	140	22	3568	160	192	30	14	83	54	63	501	421	235	231	101	44	98	75	143	298	342	26	195	53
	Before '28	40	147	18	4927	235	181	41	6	149	70	75	608	471	381	271	122	57	106	103	82	407	624	35	226	71
	Unid.*	7	6	83	23	10	13	1	102	22	70	3	67	29	1	3	8	208	4	1735	12	943	12	4	79	1
	Total	3852	2964	1930	89909	5931	11275	1429	4620	8357	7145	3878	44786	29624	13171	8059	5849	6316	3572	8615	18356	19550	16652	1825	13375	3882
TERRA-ESSEX	6 Mo. '41																									
	'40																									
	'39																									
	'38																									
	'37	1084	300	169	3671	1166	1202	152	364	1535	1039	544	4958	2796	1629	1806	837	535	565	647	2125	6994	1764	244	1246	482
	'36	752	266	202	3908	1037	934	134	319	1274	761	491	4589	3347	1743	1468	790	390	534	607	2383	6003	1814	242	1222	743
	'35	339	162	110	2863	496	584	78	187	590	367	226	2456	2305	1097	1066	419	208	287	332	1218	3050	1129	142	671	442
	'34	300	133	73	1763	325	692	57	133	567	392	118	1766	1090	766	656	307	166	460	196	1745	1953	650	82	508	175
	'33	138	72	32	1543	223	569	37	80	337	186	44	1020	702	480	496	214	80	342	196	1324	1613	342	30	364	91
	'32	46	41	16	1107	168	305	20	52	226	78	32	497	457	241	261	174	56	251	125	735	647	260	17	280	30
	'31	46	34	18	906	210	379	24	44	298	102	22	612	642	470	308	241	65	500	149	876	884	386	20	346	49
	'30	35	48	38	1330	215	338	28	23	245	39	65	575	497	475	288	227	44	361	134	432	537	633	19	344	66
	'29	63	88	36	2810	409	286	43	40	244	69	86	1134	1370	689	587	418	82	358	221	414	1559	638	47	656	122
	'28	26	42	9	1115	143	85	18	14	115	40	52	395	504	280	260	155	31	111	67	79	486	299	20	262	53
	Before '28	36	28	19	1010	74	58	13	7	88	41	35	287	415	217	197	102	26	103	52	38	317	306	20	183	40
	Unid.*	7	1	27	3	5	4	1	62	14	44		35	10	2	10	2	69	5	1034	6	1364	8	3	38	1
	Total	2872	1215	749	22029	4471	5436	605	1315	5533	3158	1715	18324	14135	8099	7393	3886	1750	3877	3760	11375	25397	8229	886	6120	2274
WILLYS	6 Mo. '41	367	38	72	2017	115	215	25	41	411	411	82	509	478	221	150	160	180	121	406	357	953	184	64	238	53
	'40	373	58	129	2886	178	309	35	59	771	400	122	1296	763	383	210	240	402	190	236	589	961	212	122	285	118
	'39	121	30	16	2393	105	164	12	81	431	78	46	432	455	122	81	139	125	131	173	262	337	227	36	204	32
	'38	153	71	43	1847	86	160	19	63	536	168	66	753	461	267	232	178	271	70	190	322	432	323	53	323	42
	'37	447	201	144	8953	584	863	63	133	1094	462	171	2776	2268	724	519	571	374	249	346	1092	2113	906	116	1014	207
	'36	135	93	27	4381	118	101	20	11	485	250	106	206	361	105	33	103	94	31	19	108	273	82	28	53	35
	'35	104	65	24	4076	21	36	11	6	235	135	43	84	216	33	18	53	83	5	10	29	93	27	25	35	28
	'34	62	33	30	1880	12	36	8	4	378	189	23	55	83	30	20	44	93	15	9	31	93	9	24	30	6
	'33	57	31	5	1767	95	107	12	26	373	93	14	373	283	131	116	172	40	44	78	183	184	206	17	188	14
	'32	37	19	19	614	92	126	12	18	96	93	22	524	372	230	243	179	53	67	96	249	235	334	20	294	32
	'31	39	49	32	1139	258	145	20	15	139	67	51	634	622	534	307	310	40	123	105	244	286	635	16	568	57
	'30	47	51	51	939	249	107	22	6	126	72	64	645	441	627	389	252	44	128	76	158	384	675	41	690	76
	'29	120	117	121	1377	308	135	35	6	186	129	108	954	866	957	818	449	58	125	109	163	725	1034	47	1073	142
	'28	137	92	88	979	272	103	34	5	141	128	142	744	824	945	920	317	56	91	109	85	505	784	78	945	174
	Before '28	55	56	67	1029	140	83	21	8	131	59	93	543	625	530	383	149	44	102	96	55	459	697	38	419	92
	Unid.*	12		27	5	4	4		34	16	28	1	25	4	1	4	4	61		567	1	663	14	6	45	4
	Total	2266	1004	895	36282	2637	2694	349	516	5549	2762	1154	10553	9122	8089	4443	3320	2018	1492	2625	3916	8726	6419	731	6402	1112
W-KNIGHT	6 Mo. '41																									
	'40																									
	'39																									
	'38																									
	'37																									
	'36																									
	'35																									
	'34																									
	'33				21	2	4		3	4	1		13	19	2	1	3	3	1	1	4	4	20				
	'32		3	2	260	5	17	1	4	8		1	68	34	22	7	1	5	6	3	24	5	63		11	3
	'31	1	6		395	12	18	2	9	22	2	3	131	82	26	23	4	10	9	11	34	14	135		15	6
	'30	4	14	3	620	33	64	4	6	13	5	6	188	65	47	44	4	12	27	12	46	11	157	1	29	13
	'29	7	27	10	1410	53	60	6	5	29	6	9	252	120	85	56	3	7	36	30	56	37	208	2	36	26
	'28	9	17	2	824	48	42	4	5	17	5	16	222	82	119	67	6	7	26	21	40	22	136	3	33	24
	Before '28	5	20	3	1538	35	55	6	6	34	4	26	298	145	107	52	2	7	35	23	40	34	258	2	44	20
	Unid.*			2	4		1			2			5				2	6		52		25	1	1	1	
	Total	26	87	22	5072	188	261	23	38	129	23	61	1177	547	408	250	25	57	140	153	244	152	978	9	169	92
MISC.	6 Mo. '41	22	2	16	168	21	28	2	32	67	122	3	394	84	24	13	10	107	5	37	78	107	18	26	38	8
	'40	28	5	17	190	24	30	4	31	155	113	7	1339	81	20	55	24	175	13	66	171	150	124	25	100	5
	'39	36	5	30	276	13	55	5	22	218	119	22	170	163	59	40	56	184	17	66	161	156	45	33	102	6
	'38	12	19	12	309	12	39	2	16	207	83	12	80	54	12	21	22	106	13	49	94	72	11	19	64	3
	'37	11	16	10	567	41	63	4	34	221	90	14	216	104	18	48	23	197	11	58	201	196	39	33	101	19
	'36	38	18	15	878	109	226	11	29	224	112	47	1145	306	87	114	84	198	22	73	659	535	229	28	219	54
	'35	74	14	14	865	127	280	11	49	332	141	18	1184	431	102	162	90	157	41	72	560	524	231	22	177	28
	'34	66	17	20	1029	89	229	11	43	330	210	23	517	303	68	96	76	148	48	114	509	336	144	37	210	17
	'33	69	26	32	1637	113	273	15	32	657	172	24	664	373	137	94	210	125	61	117	450	409	219	39	236	45
	'32	66	40	28	1962	130	265	14	52	515	154	25	494	321	101	107	154	126	72	115	500	420	251	35	236	29
	'31	47	110	34	5001	466	655	33	91	351	170	96	1044	543	339	315	259	124	196	211	903	742	607	34	496	102
	'30	98	189	122	6205	579	906	51	72	415	217	203	1580	793	1038	709	361	153	317	289	947	1122	1102	74	703	170
	'29	82	277	95	7145	564	868	57	92	306	201	243	2001	1002	872	674	405	184	319	206	799	1259	1330	68	837	284
	'28	51	140	72	4913	322	299	36	36	174	93	172	1073	670	585	579	216	84	178	132	306	630	998	51	603	168
	Before '28	46	180	134	7837	567	439	48	45	375	134	182	1501	851	878	716	236	73	209	197	429	855	1400	65	643	261
	Unid.*	49	61	35	84	179	22	7	93	182	63	70	255	473	91	12	139	376	48	848	722	1217	28	417	135	57
	Total	795	1119	686	39066	3356	4677	311	769	4729	2194	1161	13657	6552	4429	3755	2365	2517	1570	2650	7439	8730	6776	1006	4910	1236

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

U. S. SUMMARY—BY MAKES AND

	July 1 Total	6 Mo. 1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	Prior to 1928	Year not Given
Buick	1,665,984	297,803	267,297	190,755	150,165	196,093	148,238	51,355	52,667	34,705	36,859	57,300	45,534	38,515	35,793	53,073	9,832
Cadillac	135,168	49,654	13,823	11,736	8,480	11,621	10,740	3,654	3,732	2,193	2,752	5,971	3,269	2,523	1,791	2,541	688
Chevrolet	7,017,237	784,093	749,789	559,822	452,503	761,123	877,123	529,967	474,324	393,412	239,750	402,607	268,323	234,917	143,002	31,433	50,049
Chrysler	655,951	116,561	85,566	61,552	42,204	86,884	48,879	32,271	23,841	20,474	18,181	26,216	25,056	22,037	19,989	21,770	4,420
De Soto	441,583	70,662	63,993	50,163	32,784	71,330	37,175	22,603	9,583	16,922	17,301	14,771	13,396	17,905			2,995
Dodge	1,630,285	173,319	186,026	174,148	98,668	256,857	232,051	140,042	73,938	73,963	20,386	29,401	29,644	44,801	38,694	46,934	11,413
Ford	6,814,386	495,218	509,859	417,136	325,207	757,924	730,443	642,125	435,340	188,235	163,933	443,406	615,129	658,256	186,739	178,446	61,990
Graham-G. P.-Jewett	106,022	1,169	1,265	3,676	3,423	14,019	12,863	13,655	7,503	6,891	5,286	6,831	9,092	12,048	5,068	2,268	965
Hudson	332,946	69,612	76,654	44,751	37,826	18,588	19,925	15,957	14,542	1,672	3,398	7,139	7,107	7,464	2,788	3,562	1,961
Hupmobile	67,614	322	124	973	1,310	319	1,751	5,742	4,291	3,990	5,012	8,712	7,619	10,884	8,275	7,704	586
La Salle	123,105	3	20,187	19,971	13,127	26,992	11,400	8,335	4,511	2,443	2,074	3,475	3,428	3,678	1,878	699	904
Lincoln	116,704	15,704	19,854	18,075	15,196	24,662	12,871	1,331	1,539	953	1,440	1,088	1,013	885	436	772	885
Mercury	198,187	66,664	73,870	56,227													1,426

AND YEAR OF MANUFACTURE—*Concluded*

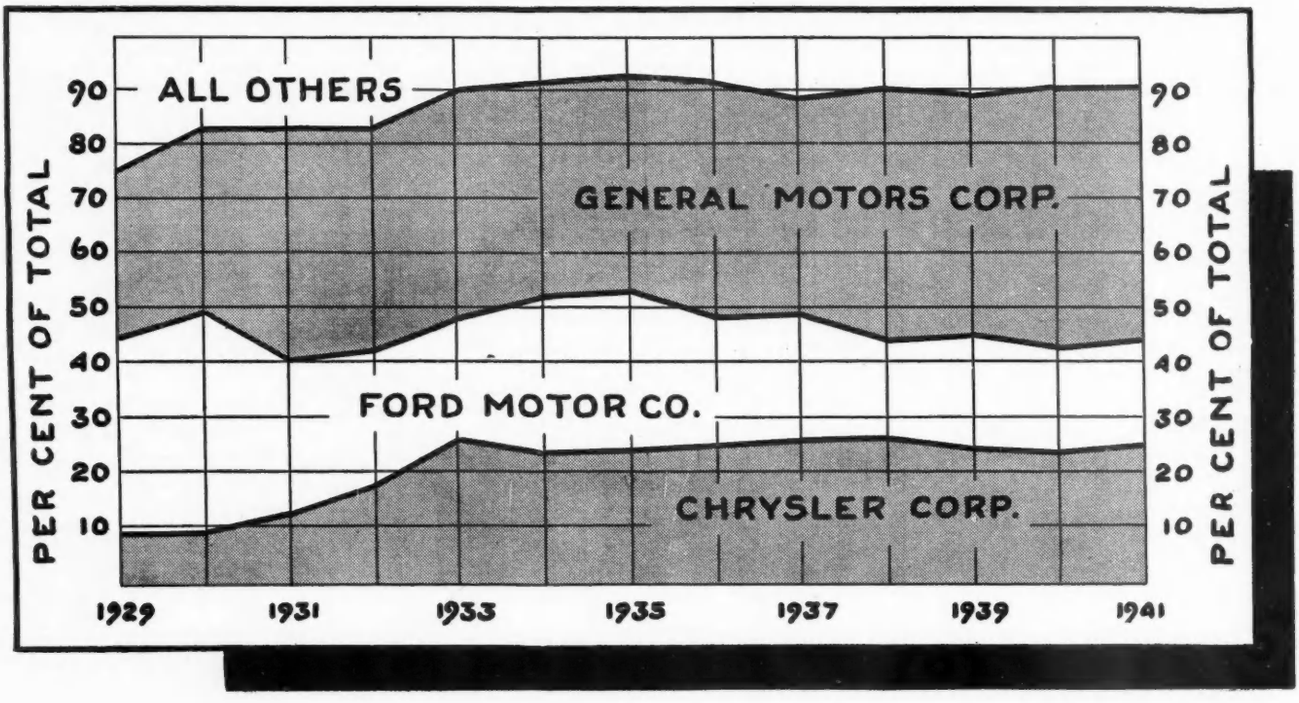
Model		Neb.	Nev.	N. H.	N. J.	N. M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.†	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
STUDEBAKER	6 Mo. '41	782	181	166	3428	231	6507	1691	295	5845	600	1748	7949	424	441	293	1516	3757	616	169	1177	2232	1234	2419	205	90347
	'40	652	195	291	3076	232	6859	1414	322	6331	950	1274	7967	509	765	354	1438	3501	689	167	1318	2172	1178	2249	236	96392
	'39	533	158	266	2457	187	5661	811	178	4500	776	902	5657	621	579	228	1017	2795	633	134	816	1593	842	1976	170	73051
	'38	318	69	158	1458	93	2965	224	107	1942	370	533	2393	263	138	121	355	1804	327	86	391	975	331	857	74	36947
	'37	567	146	284	3272	169	6653	418	168	5394	744	1216	6215	606	378	234	701	3439	604	140	596	2067	757	2048	162	74704
	'36	496	118	215	1688	106	3543	222	102	2789	605	918	3961	209	187	164	428	2014	393	58	387	1761	389	1547	153	50549
	'35	388	51	120	1097	74	2359	244	111	1910	392	520	2786	123	131	174	307	1439	202	49	303	1073	240	904	76	33212
	'34	434	48	202	1596	78	3974	367	150	2165	340	437	3239	183	235	200	291	1343	159	60	343	1031	216	874	50	37558
	'33	169	15	87	690	25	1966	123	27	896	150	137	1245	89	51	61	104	497	45	32	176	385	83	373	21	17161
	'32	197	35	140	1152	32	3383	105	47	1054	134	251	1785	151	66	99	136	494	61	51	146	573	93	559	20	22422
	'31	356	44	128	1054	42	2833	126	67	963	134	457	2059	134	76	139	174	517	64	62	149	823	114	644	45	22363
	'30	383	32	80	634	30	1853	95	92	907	127	457	1633	76	65	131	139	397	86	53	105	725	101	639	42	18977
	'29	346	39	53	541	58	1421	80	122	890	196	404	1493	86	39	142	108	402	100	49	104	684	80	666	37	18175
	'28	286	36	45	314	26	817	51	86	489	135	331	1077	32	44	126	61	236	52	39	60	582	54	458	28	12648
	Before '28	357	21	45	296	45	678	69	202	653	174	499	1439	43	30	164	45	254	100	51	53	781	70	459	35	16096
	Unid.*	4		2	10		33	2	1	35	16	2	55	2	3		75	69	2	3	7	1	1	24		3798
	Total	6268	1188	2282	22763	1428	51505	6042	2077	36763	5843	10144	51554	3556	3228	2630	6875	22958	4133	1203	6101	17458	5783	16696	1405	624870
TERRA-ESSEX	6 Mo. '41																									
	'40																									
	'39																									
	'38																									
	'37	528	69	287	2250	255	5285	12 3	231	6685	876	1086	5804	335	945	212	776	2700	429	199	863	2103	686	2005	459	73905
	'36	540	81	275	1654	207	4550	793	204	5771	811	1228	5166	441	615	276	617	2407	444	258	739	2230	607	1962	256	68095
	'35	333	31	190	957	92	2838	575	106	3221	493	643	2959	189	361	237	442	1104	162	135	459	1183	285	1126	194	39147
	'34	326	29	257	993	61	3013	707	72	2097	362	322	2174	267	305	153	332	749	175	146	413	635	285	751	109	29805
	'33	171	7	232	739	33	2518	391	36	1406	107	215	1380	195	182	47	186	362	78	141	242	488	178	510	46	20435
	'32	86	3	118	589	7	1615	161	21	814	56	116	767	108	67	35	97	140	69	114	121	166	87	419	31	11929
	'31	133	8	177	630	19	1968	193	29	1035	50	131	941	125	69	55	115	143	67	149	150	233	93	500	31	14875
	'30	102	15	82	461	25	1471	100	57	981	77	345	1031	51	37	84	91	125	82	94	87	432	112	460	28	13496
	'29	332	24	142	609	29	1696	194	167	1867	170	516	1640	88	82	161	178	282	204	166	176	838	117	1016	34	23187
	'28	136	9	46	129	17	478	97	101	613	60	219	645	11	32	77	57	133	55	49	68	319	44	450	9	8504
	Before '28	115	6	29	95	9	347	66	84	403	64	140	504	10	28	65	33	106	32	45	34	226	21	366	12	6552
	Unid.*			2	4		22	6	1	27	1		32		2		43	34	1	4			2	11		2947
	Total	2802	282	1837	9110	754	25801	4506	1109	24920	3127	4941	23043	1820	2725	1402	2967	6284	1798	1499	3352	8853	2517	9586	1009	312837
WILLYS	6 Mo. '41	51	14	56	514	9	1054	301	44	1112	82	347	1090	141	60	45	318	352	79	32	91	576	209	282	32	14767
	'40	65	25	118	812	26	1753	409	70	2045	227	570	1427	111	169	85	518	630	90	63	166	519	290	444	57	22086
	'39	54	12	57	409	6	992	150	34	1009	149	154	543	19	51	41	132	269	49	23	138	137	151	220	11	11043
	'38	115	23	51	521	32	1345	196	53	835	208	216	779	40	90	45	140	468	44	40	250	199	143	285	41	13318
	'37	374	59	179	1573	130	3284	612	101	4829	540	809	2685	142	410	124	521	1154	163	146	521	1291	586	1003	119	47725
	'36	77	27	47	157	21	331	32	26	934	102	705	886	9	94	18	288	258	65	15	43	980	50	43	22	12436
	'35	23	9	8	66	18	124	70	5	404	35	337	439	6	75	9	169	144	29	1	38	409	21	34	5	7973
	'34	17	12	6	70	7	223	68	3	266	27	229	323	10	90	4	161	128	11		18	204	12	13	1	5100
	'33	50	6	21	384	8	1226	74	15	773	39	106	506	49	113	18	91	119	21	23	39	192	66	146	8	8702
	'32	164	6	45	279	10	1168	45	56	822	70	102	508	55	25	15	84	125	8	61	104	119	82	406	9	8444
	'31	384	5	60	311	20	1470	71	145	1068	77	132	784	45	24	88	105	185	27	76	92	301	163	506	19	12591
	'30	414	8	38	250	24	1061	65	203	999	147	179	890	35	18	181	97	238	25	77	84	410	87	611	23	12524
	'29	817	16	59	285	53	1258	140	379	1870	323	370	1436	33	56	359	200	724	59	127	159	520	140	856	25	20426
	'28	986	18	57	197	32	925	157	448	1356	253	388	1408	27	80	375	123	619	45	86	124	523	108	726	31	17790
	Before '28	473	15	31	161	17	698	57	379	1013	146	277	909	17	25	259	48	269	31	61	64	377	38	657	13	12009
	Unid.*			2	4		15	1		48	1		23		1		39	72	1	1	3		6	8		1760
	Total	4064	255	835	5993	413	16927	2448	1961	19383	2426	4921	14641	739	1381	1666	3032	5754	747	832	1934	6757	2132	6240	416	228724
W-KNIGHT	6 Mo. '41																									
	'40																									
	'39																									
	'38																									
	'37																									
	'36																									
	'35																									
	'34																									
	'33	2		5	35		57	1	2	11	3	3	20		1		1	8	3		3	6	1	5		273
	'32	11		4	74	1	157	7	8	65	5	37	70	8		1	2	17	2	6	4	29	9	8	3	1081
	'31	29	1	13	146	1	255	1	13	113	5	36	151	8	2	5	1	21	7	6	6	82	9	30	4	1915
	'30	59		8	172	4	300	6	18	187	17	100	234	28	3	6	2	35	5	15	24	186	22	26	6	2891
	'29	77	4	7	192	5	307	23	44	307	21	145	332	26	5	35	4	43	20	12	28	264	24	36	7	4544
	'28	71	4	7	133	6	218	22	47	219	12	145	293	20	4	28	4	25	16	8	15	271	15	28	8	3416
	Before '28	92	1	9	143	8	259	22	54	252	12	194	375	10	6	32	1	23	42	13	14	373	21	61	5	4821
	Unid.*	1					6			3		2	3			1	1	6		1				1		127
	Total	342	10	53	895	25	1559	82	186	1157	75	662	1478	100	21	108	16	178	95	61	94	1211	101	195	33	19068
MISC.	6 Mo. '41	37	2	6	28	3	976	5		54	17	5	90	10	7	2	44	365	2	7	20	27	15	77	3	3234
	'40	12	2	20	40	3	2592	13	1	96	38	28	163	29	29	7	65	312	3	6	47	58	14	65	4	6599
	'39	22	2	14	99	6	618	45	5	154	52	48	177	32	41	7	78	266	5	5	58	43	14	89		3939
	'38	2	5	9	49	2	385	20	3	63	49	9	93	12	25	3	55	145	5	3	50	37	19	49	2	2437
	'37	19	5	9	141	12	333	21	2	106	44	31	170	25	14	8	45	238	18	5	59	57	12	118	3	3830
	'36	50	11	26	516	8	3263	25	12	458	153	120	473	94	27	25	73	299	41	8	57	142	56	209	13	11599
	'35	37	6	49	434	17	1133	53	9	613	69	105	4 3	78	49	29	73	323	19	18	92	167	64	288	16	9920
	'34	45	9	43	370	17	1103	78	4	550	122	113	459	104	94	13	92	223	30	26	115	153	54	171	6	8684
	'33	48	8	43	626	23	1715	186	25	549	92	82	626	102	148	10	149	213	31	15	116	217	44	178	9	11484
	'32	53	6	32	599	19	1522	102	23	519	76	131	580	92	57	9	125	143	29	29	89	188	39	186	16	10876
	'31	142	31	107	1145	45	2786	108	62	1092	135	500	1349	199	70	72	100	319	108	85	123	789	94	536	46	23010
	'30	418	48	162	1180	104	3501	199	170	1626	325	1006	2148	245	101	225	156	679	195	119	221	1513	154	959	59	33933
	'29	511	69	155	1192	83	2964	152	293	2102	388	1112	2388	159	83	275	175	804	201	123	232	1942	141	1069	70	36853
	'28	444	34	82	549	66	1429	124	276	1161	244	694	1517	63	36	321	88	404	122	60	148	1194	90	702	60	22499
	Before '28	533	59	102	638	62	1795	119	339	1423	285	1010	2040	108	73	299	115	437	119	105	143	1477	117	895	63	30660
	Unid.*	395	2	41	90	30	743	4	2	77	371	13	278	3	38	139	159	596	20	49	37	4	37	139	10	8940
	Total	2768	299	900	7696	500	26858	1254	1226	10643	2460	5007	13044	1355	892	1444	1592	5766	946	663	1607	8008	964	5710	380	228487

†—Year model estimated. **Unid.***—Unidentified as to year of manufacture. All totals are as of July 1, 1941. Data from R. L. Polk & Co.

BY YEAR OF MANUFACTURE

	July 1 Total	6 Mo. 1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	Prior to 1928	Year not Given
Nash-Ajax-Lafayette	453,457	64,688	54,893	43,515	32,485	69,125	43,867	20,194	21,757	6,067	14,843	12,717	14,143	27,981	11,865	12,385	2,952
Oldsmobile	1,274,547	211,480	183,160	124,642	88,114	180,379	177,156	114,273	61,109	25,414	13,274	27,326	18,911	22,767	11,134	6,966	8,442
Packard	457,693	49,719	84,773	42,622	45,950	100,214	52,853	25,741	5,960	4,288	9,163	5,726	8,795	8,101	5,339	4,873	3,576
Plymouth	3,328,477	406,151	388,870	359,625	242,485	477,016	456,000	311,180	256,546	217,809	99,597	33,369	27,325	28,005			24,499
Pontiac	1,486,879	258,077	206,883	134,380	89,951	213,025	159,308	110,096	58,278	62,600	27,439	45,653	25,322	34,053	23,122	8,454	10,238
Studebaker-Rockne	624,870	90,847	96,392	73,051	36,947	74,704	50,549	33,212	37,558	17,161	22,422	22,363	18,977	18,175	12,648	16,066	3,798
Terraplane-Essex	312,637					73,905	68,085	39,147	29,805	20,435	11,929	14,675	13,466	23,187	8,504	6,552	2,947
Willys-Overland-Whippet	228,724	14,767	22,066	11,043	13,318	47,725	12,486	7,973	5,100	8,702	8,444	12,591	12,524	20,426	17,790	12,009	1,760
Willys-Knight	19,068									273	1,081	1,915	2,891	4,544	3,416	4,821	127
Miscellaneous	228,487	3,234	6,599	3,939	2,437	3,830	11,599	9,920	8,684	11,484	10,876	23,010	33,933	36,853	22,489	30,660	8,940
Totals	27,700,011	3,239,747	3,111,943	2,401,802	1,732,560	3,481,335	3,175,362	2,138,773	1,590,608	1,120,086	735,440	1,211,262	1,204,897	1,278,055	560,760	501,988	215,393

Graphic Story of New Car Registrations by Manufacturing Groups



How Users Bought the Various Makes of Cars*

(New Passenger Car Registrations by Makes, by Years)

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
Auburn	29,536	11,646	5,038	5,536	5,163	1,848	146	.....	.....	.....	.....
Bantam (Austin)	2,941	.....	3,675	1,057	.....	.....	.....	700	1,227	800	138
Buick	90,873	49,708	43,809	63,067	87,635	160,687	205,297	166,380	218,995	295,513	308,615
Cadillac	11,136	6,269	3,903	4,899	6,692	11,766	11,231	10,639	13,090	21,965	60,242
Chevrolet	583,429	322,860	474,493	534,906	656,698	930,250	768,040	464,337	598,341	853,529	880,346
Chrysler	52,650	26,016	28,677	28,052	40,536	58,698	91,622	46,184	63,956	100,117	143,025
Continental	.....	.....	3,310	953	.....	.....	.....	.....	.....	.....	.....
Cord	1,416	335	.....	.....	.....	1,174	1,149	.....	.....	.....	.....
De Soto	28,430	25,311	21,260	11,447	26,952	45,088	74,424	35,259	51,951	71,943	91,004
De Vaux	4,808	1,358	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dodge	53,090	28,111	86,062	90,139	178,770	248,518	255,258	104,881	176,585	197,252	215,563
Durant	7,229	1,135	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ford	528,581	258,927	311,113	530,528	826,519	748,554	765,933	363,688	481,496	542,755	602,031
Franklin	3,881	1,829	1,329	360	.....	.....	.....	.....	.....	.....	.....
Graham	19,209	12,858	10,126	12,887	15,965	16,439	13,984	4,139	3,660	1,856	5
Hudson	19,189	8,641	2,946	19,307	21,587	20,825	90,043	40,889	62,855	79,979	73,261
Hupmobile	17,427	10,794	6,726	6,566	7,450	1,556	403	1,020	907	211	103
La Fayette	.....	.....	.....	9,301	17,445	.....	.....	.....	.....	.....	.....
La Salle	6,883	3,848	3,709	5,182	11,775	13,992	28,909	15,732	22,197	16,599	.....
Lincoln	3,466	3,179	2,112	2,061	2,370	15,567	25,243	16,991	19,940	21,004	18,769
Marmon	5,687	1,365	86	.....	.....	.....	.....	.....	.....	.....	.....
Mercury	.....	.....	.....	.....	.....	.....	.....	6,835	65,884	80,418	81,874
Nash	39,366	20,233	11,353	14,315	17,739	43,070	70,571	31,814	54,050	52,853	77,824
Oakland	12,985	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oldsmobile	46,983	24,128	35,295	71,676	149,375	178,488	188,306	92,398	148,412	201,256	230,367
Packard	16,256	11,058	9,081	6,552	37,653	68,772	95,455	49,163	62,005	73,794	69,653
Pierce-Arrow	4,522	2,692	2,152	1,740	875	787	167	17	.....	.....	.....
Plymouth	94,289	111,926	249,667	302,557	382,985	499,580	462,268	286,241	348,807	440,093	452,187
Pontiac	73,148	47,926	85,348	72,645	140,122	171,669	212,403	98,399	159,836	235,815	286,123
Reo	6,762	3,870	3,623	3,854	3,894	3,146	.....	.....	.....	.....	.....
Rockne	2	16,966	14,554	.....	.....	.....	.....	.....	.....	.....	.....
Studebaker	46,533	25,002	21,688	41,560	39,573	67,835	70,048	41,504	84,660	102,281	114,331
Terraplane (Essex)	42,545	28,778	35,831	40,510	53,838	78,471	†	†	†	.....	.....
Willys-Whippet	42,936	22,483	15,314	6,576	10,439	12,423	51,411	13,012	14,734	21,418	22,102
Willys-Knight	8,405	3,415	353	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous	3,548	3,732	1,159	324	1,858	5,294	1,441	799	1,789	4,454	3,082
Total	1,908,141	1,096,399	1,493,794	1,888,559	2,743,908	3,405,497	3,483,752	1,891,021	2,653,377	3,415,905	3,731,166

New Car Registrations—By Manufacturing Groups

Chrysler Corp.	228,459	191,384	385,666	432,195	629,243	851,884	883,572	472,565	641,299	809,405	901,797
Ford Motor Co.	532,047	262,106	313,225	532,589	828,839	764,121	791,176	387,514	567,320	644,177	702,656
General Motors	825,437	454,739	646,556	752,375	1,052,297	1,466,852	1,414,186	847,885	1,158,871	1,624,677	1,765,693
All Others	322,198	98,190	148,347	171,398	233,479	321,640	394,818	183,057	285,887	337,646	361,038

* Data from R. L. Polk & Co. † Terraplane included with Hudson.

REGISTRATIONS

How Users Bought the Various Makes of Trucks

(New Truck Registrations by Makes, by Years)*

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941††
Autocar	1,748	1,015	1,127	1,139	1,001	1,451	2,181	1,617	2,044	1,955	2,510
Brockway	1,685‡	752	875	1,213	1,245	1,695	1,593	1,303	1,815	1,672	2,294
Chevrolet	99,600	60,784	99,880	157,507	167,129	204,344	183,674	119,479	169,457	194,038	212,787
Diamond T	2,483	2,250	4,139	5,440	6,454	8,750	8,118	4,393	5,412	6,358	6,077
Divco	.....	.....	200	254	398	964	1,125	1,229	1,481	1,662	2,306
Dodge	13,518	8,744	28,034	48,252	61,488	85,295	64,098	33,656	48,049	54,615	62,925
Federal	1,523	1,167	1,360	1,962	2,190	2,930	2,339	1,370	1,837	1,617	1,611
Ford	138,854	66,937	62,397	128,250	185,848	177,244	189,376	100,959	128,889	162,333	174,024
F. W. D.	.....	.....	71	156	212	369	435	274	182	252	280
G. M. C.	6,919	6,359	6,602	10,449	11,442	26,980	43,522	20,152	34,908	42,486	45,703
Hudson	.....	.....	.....	.....	638	1,905	4,823	719	409	761	736
Indiana	.....	957	1,252	729	862	1,705	1,371	435	178	.....	.....
International	21,073	15,752	26,658	31,555	53,471	71,958	76,174	55,836	66,048	77,891	92,482
Mack	2,945	1,425	1,652	1,830	1,515	4,226	5,513	4,406	6,670	7,754	9,468
Plymouth	.....	.....	.....	.....	660	2,420	13,709	6,652	8,294	9,573	7,732
Reo	5,166	3,187	3,042	5,035	5,101	4,227	4,254	2,929	853	625	1,543
Sterling	739	227	108	134	174	277	311	267	326	341	400
Stewart	1,394	867	684	736	880	1,280	1,148	390	70	.....	.....
Studebaker	3,495	2,430	2,407†	1,697	2,100	3,279	5,129	2,000	2,110	1,207	5,078
White	2,561	2,138	1,384	3,963	3,304	5,757	5,933	3,514	4,558	7,344	9,271
Willys	3,131	1,132	233	25	2,280	2,441	1,122	1,889	1,634	2,291	2,031
All Others	7,050	4,290	3,760	3,560	2,291	2,147	2,301	1,880	1,524	1,552	1,429
Total	313,884	180,413	245,869	403,886	510,683	611,644	618,249	365,349	486,748	576,327	640,697

‡ Includes Indiana. † Includes Rockne. * Data from R. L. Polk & Co. †† Does not include Federal Government registrations which are included in other years.

Comparative Record of Retail Sales—Cars and Trucks

(New Registrations by Months, by Years)

Passenger Cars

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	126,776	87,493	79,821	61,242	136,635	215,775	280,685	145,765	203,212	260,216	297,558	January
February	134,133	82,813	69,464	94,887	170,615	176,651	215,049	120,359	164,942	224,625	299,701	February
March	200,841	92,192	78,741	173,287	261,477	301,239	363,738	181,222	248,038	312,371	419,396	March
April	265,732	121,093	119,909	223,050	319,650	397,186	384,951	192,241	268,335	353,239	488,460	April
May	247,727	131,282	160,242	219,225	293,199	392,744	391,697	178,052	280,834	345,748	514,478	May
June	201,911	148,752	174,190	223,864	280,360	369,422	360,236	156,384	243,741	318,615	443,470	June
July	194,322	104,188	185,660	229,006	285,178	357,490	365,767	148,896	229,308	315,246	391,795	July
August	155,744	93,457	178,661	193,198	233,851	262,912	306,958	127,954	182,633	211,031	246,595	August
September	124,903	81,893	157,976	146,931	157,098	208,896	235,683	93,269	141,633	148,000	125,293	September
October	102,659	63,195	136,326	140,937	148,389	171,397	202,898	119,053	212,586	290,495	165,485	October
November	75,829	44,358	94,180	107,574	220,262	223,732	196,463	200,853	231,571	301,430	164,747	November
December	77,564	45,683	58,624	75,356	237,194	327,053	179,621	226,973	246,544	334,073	174,188	December
Total	1,908,141	1,096,399	1,493,794	1,888,557	2,743,908	3,404,497	3,483,752	1,891,021	2,653,377	†3,415,905	3,731,166	Total

Trucks

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	24,415	14,776	11,709	22,903	34,759	43,760	47,618	31,995	37,715	45,650	50,830	January
February	23,466	14,558	9,707	24,476	34,797	40,301	41,843	27,551	34,102	41,336	50,124	February
March	30,609	16,874	9,934	33,884	41,511	52,428	60,301	37,255	45,083	53,093	62,413	March
April	36,848	17,784	17,301	38,882	46,785	64,956	67,832	35,682	46,063	55,982	64,236	April
May	33,496	18,696	20,925	39,831	47,968	62,183	65,857	32,937	45,381	51,553	64,177	May
June	28,496	17,876	23,254	34,768	48,243	56,851	58,626	30,647	40,482	43,504	62,265	June
July	30,102	14,731	30,642	37,490	51,243	63,695	61,686	33,475	44,747	50,913	67,412	July
August	27,070	15,081	28,799	40,790	50,355	59,222	60,872	34,231	43,523	48,980	56,191	August
September	25,967	14,967	31,269	37,225	41,390	54,611	54,711	26,570	32,983	39,224	43,892	September
October	24,685	15,156	28,058	40,878	37,439	41,220	40,246	19,589	37,923	48,356	41,352	October
November	15,553	10,392	18,691	28,689	36,935	30,255	27,248	23,943	41,286	46,618	36,799	November
December	13,177	9,522	15,580	24,070	39,258	42,162	31,409	31,474	37,460	51,095	41,006	December
Total	313,884	180,413	245,869	403,886	510,683	611,644	618,249	365,349	486,748	†576,327	640,697	Total

Total Passenger Cars and Trucks

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	151,191	102,269	91,530	84,145	171,394	259,535	328,303	177,760	240,927	305,866	348,388	January
February	157,599	97,371	79,171	119,363	205,412	216,952	256,892	147,910	199,044	265,961	349,825	February
March	231,450	109,066	88,675	207,171	302,988	353,667	424,039	218,477	293,121	365,464	481,809	March
April	302,580	138,877	137,210	261,932	366,435	462,142	452,783	227,923	314,398	409,221	552,696	April
May	281,223	149,978	181,167	259,056	341,167	454,927	457,554	210,989	326,215	397,301	578,655	May
June	230,407	166,628	197,444	258,632	328,603	426,273	418,862	187,031	284,223	362,119	505,735	June
July	224,424	118,919	216,302	266,496	336,421	421,185	427,453	182,371	274,055	366,159	459,207	July
August	182,814	108,538	207,460	233,988	284,206	322,134	367,830	162,185	226,156	260,011	302,786	August
September	150,870	96,860	189,245	184,156	198,488	263,507	290,394	119,839	174,616	187,224	169,185	September
October	127,344	78,351	164,384	181,815	185,828	212,617	243,144	138,642	250,509	338,851	206,837	October
November	91,382	54,750	112,871	136,263	257,197	253,987	223,717	224,796	272,857	348,048	201,546	November
December	90,741	55,205	74,204	99,426	276,452	369,215	211,030	258,447	284,004	385,168	215,194	December
Total	2,222,025	1,276,812	1,739,663	2,292,443	3,254,591	4,016,141	4,102,001	2,256,370	3,140,125	†3,992,232	4,371,863	Total

* Figures from R. L. Polk & Co. † Passenger car total includes 816 delinquent registrations which cannot be assigned to any month. The truck total contains 23 delinquents, making a total car and truck delinquent registration of 839.

ESTIMATED DOLLAR VOLUME OF NEW CAR RETAIL SALES

1941 Retail Price of Average New Car—$942.

Month	1938			1939			1940			1941		
	Units †	Dollar ‡ Volume	Average Price per Car	Units †	Dollar ‡ Volume	Average Price per Car	Units †	Dollar ‡ Volume	Average Price per Car	Units †	Dollar ‡ Volume	Average Price per Car
January	145,663	$126,600,000	$869	203,175	$173,200,000	$852	260,202	$226,100,000	$869	298,977	$276,200,000	$924
February	120,261	104,400,000	868	164,808	129,800,000	788	226,607	194,300,000	857	300,250	275,600,000	918
March	181,037	157,200,000	868	247,930	210,400,000	849	312,285	269,300,000	862	419,774	385,700,000	919
April	192,086	166,800,000	868	268,284	226,900,000	846	352,685	304,900,000	864	488,925	453,000,000	926
May	177,951	154,300,000	866	280,800	237,700,000	846	345,191	298,100,000	864	514,766	476,200,000	925
June	156,290	135,600,000	867	243,601	205,600,000	844	318,155	274,300,000	862	443,320	414,300,000	935
July	148,798	128,400,000	863	229,271	192,000,000	837	314,822	271,800,000	863	391,583	365,200,000	933
August	127,955	110,100,000	860	182,598	153,700,000	842	210,621	182,600,000	867	246,536	227,300,000	922
September	93,165	79,700,000	856	141,578	121,900,000	861	147,529	131,700,000	893	124,929	115,800,000	927
October	118,957	105,700,000	888	212,541	188,100,000	885	290,109	271,000,000	934	165,430	168,600,000	1019
November	200,802	172,300,000	857	231,553	204,200,000	882	300,874	278,500,000	926	164,589	174,300,000	1059
December	226,832	193,200,000	851	246,520	216,500,000	878	333,987	309,700,000	927	174,117	184,700,000	1061
Total	1,889,797	$1,634,300,000	$864*	2,652,659	$2,260,000,000	$852*	3,413,067	$3,012,300,000	$883*	3,733,195	$3,516,900,000	$942*

† The difference between the number of units shown here and those for new car registrations shown elsewhere is due to the cars grouped under "Miscellaneous" of which no account is taken in these calculations. During the first five months of 1941, Federal Deliveries are included which are not shown elsewhere in this issue.
‡ All calculations are based on Delivered Price at Factory of the five-passenger, four-door sedan in conjunction with new car registrations of each model.
* Average for the year.

Distribution of New Motor Vehicles by States*

(Passenger Cars and Trucks—Percentage of Total, by States)

	New Passenger Cars			New Trucks			Total New Motor Vehicles			Per Cent of Total		
	1941	1940	1939	1941†	1940	1939	1941	1940	1939	1941	1940	1939
Alabama	42,453	36,326	30,657	15,260	12,928	11,978	57,713	49,254	42,635	1.32	1.23	1.36
Arizona	11,603	10,943	8,191	3,468	2,838	2,478	15,071	13,781	10,669	.34	.34	.34
Arkansas	23,873	21,916	19,859	13,636	10,890	9,200	37,509	32,806	29,059	.86	.82	.93
California	276,649	250,894	187,720	39,453	32,397	25,656	316,102	283,291	213,376	7.23	7.10	6.80
Colorado	28,054	27,668	24,630	6,502	6,308	5,935	34,556	33,976	30,565	.79	.85	.97
Connecticut	64,606	56,821	38,859	7,735	6,888	5,466	72,341	63,709	44,325	1.65	1.60	1.41
Delaware	11,371	9,962	7,649	1,983	1,630	1,486	13,354	11,592	9,135	.31	.29	.29
District of Columbia	30,186	29,170	25,637	2,906	2,614	2,514	33,092	31,784	28,151	.76	.80	.90
Florida	57,598	55,146	42,462	12,197	12,485	9,375	69,795	67,631	51,837	1.60	1.69	1.65
Georgia	59,300	52,400	41,125	15,742	15,468	11,702	75,042	67,868	52,827	1.72	1.70	1.68
Idaho	13,842	13,120	9,890	4,359	3,854	3,346	18,201	16,974	13,236	.42	.42	.42
Illinois	274,142	245,552	193,235	31,692	29,535	25,353	305,834	275,087	218,588	7.00	6.89	6.96
Indiana	122,224	113,479	84,494	19,347	16,575	16,857	141,571	130,054	101,351	3.24	3.26	3.23
Iowa	66,508	65,617	59,666	14,585	13,790	12,245	81,093	79,407	71,911	1.85	1.99	2.29
Kansas	49,776	46,598	34,687	12,508	9,815	7,079	62,284	56,413	41,766	1.42	1.41	1.33
Kentucky	42,011	38,956	30,806	11,395	10,490	8,908	53,406	49,446	39,714	1.22	1.24	1.26
Louisiana	43,504	37,673	32,580	9,907	9,695	8,185	53,411	47,368	40,765	1.22	1.19	1.30
Maine	20,043	19,316	14,204	5,646	5,278	4,317	25,689	24,594	18,521	.59	.62	.59
Maryland	56,579	51,319	39,389	9,138	8,054	6,307	65,717	59,373	45,696	1.50	1.49	1.46
Massachusetts	125,603	110,599	92,480	15,211	14,392	12,931	140,814	124,991	105,411	3.22	3.13	3.36
Michigan	258,733	226,696	163,017	22,186	21,622	17,704	280,919	248,318	180,721	6.43	6.22	5.76
Minnesota	77,038	73,653	60,771	13,103	12,566	10,528	90,141	86,219	71,299	2.06	2.16	2.27
Mississippi	26,931	26,747	22,302	10,408	10,604	8,472	37,339	37,351	30,774	.85	.94	.98
Missouri	102,684	96,901	76,705	22,135	19,701	16,338	124,819	116,602	93,043	2.85	2.92	2.96
Montana	17,142	16,697	13,523	5,544	5,359	4,561	22,686	22,056	18,084	.52	.55	.58
Nebraska	32,452	28,935	25,715	7,754	6,146	5,449	40,206	35,081	31,164	.92	.88	.99
Nevada	4,398	4,075	3,282	1,130	1,133	876	5,528	5,208	4,158	.13	.13	.13
New Hampshire	13,270	13,377	10,328	2,879	3,012	2,748	16,149	16,389	13,076	.37	.41	.42
New Jersey	134,584	127,347	96,049	16,909	14,710	12,725	151,493	142,057	108,774	3.46	3.56	3.46
New Mexico	10,244	10,039	8,315	4,093	4,119	3,732	14,337	14,158	12,047	.33	.35	.38
New York	331,730	320,797	264,287	36,203	35,721	32,109	367,933	356,518	296,396	8.42	8.93	9.44
North Carolina	65,727	56,760	46,160	18,078	14,750	12,867	83,805	71,510	59,027	1.92	1.79	1.88
North Dakota	13,621	12,358	9,805	4,671	3,790	2,740	18,292	16,148	12,545	.42	.40	.40
Ohio	256,034	233,439	167,526	30,389	26,509	22,536	286,423	259,948	190,062	6.55	6.51	6.05
Oklahoma	46,226	45,966	39,627	13,844	11,484	10,198	60,070	57,450	49,825	1.37	1.44	1.59
Oregon	41,558	34,358	25,574	8,973	7,212	5,873	50,531	41,570	31,447	1.16	1.04	1.00
Pennsylvania	289,285	274,035	196,201	38,426	36,107	28,915	327,711	310,142	225,116	7.50	7.77	7.17
Rhode Island	22,337	19,509	16,306	3,039	2,764	2,283	25,376	22,173	18,589	.58	.56	.59
South Carolina	35,611	30,432	25,100	7,978	7,634	6,431	43,589	38,066	31,531	1.00	.95	1.00
South Dakota	12,451	12,296	10,589	3,538	3,407	2,752	15,989	15,703	13,341	.37	.39	.42
Tennessee	56,115	49,922	37,468	13,901	12,797	9,732	70,016	62,719	47,200	1.60	1.57	1.50
Texas	174,314	160,056	132,313	44,296	38,599	33,426	218,610	198,655	165,739	5.00	4.98	5.28
Utah	13,156	12,689	10,038	3,256	3,095	3,034	16,412	15,784	13,072	.37	.40	.42
Vermont	10,204	8,792	6,666	2,867	2,325	2,076	13,071	11,117	8,742	.30	.28	.28
Virginia	73,808	57,840	42,172	15,938	12,748	10,391	89,746	70,588	52,563	2.05	1.77	1.67
Washington	58,613	46,497	33,316	10,672	9,306	7,149	69,285	55,803	40,465	1.58	1.40	1.29
West Virginia	33,166	31,102	22,955	8,570	7,800	6,604	41,736	38,902	29,559	.95	.97	.94
Wisconsin	91,109	83,340	61,873	14,744	13,051	10,949	105,853	96,391	72,822	2.42	2.41	2.32
Wyoming	8,700	7,775	7,174	2,503	2,432	2,232	11,203	10,207	9,406	.26	.26	.30
Total	3,731,166	3,415,905	2,653,377	640,697	576,327	486,748	4,371,863	3,992,232	3,140,125	100.00	100.00	100.00

* Data from R. L. Polk & Co.
† Does not include Federal deliveries which are included in other years.

REGISTRATIONS

Total U. S. Motor Vehicle Registrations by Years

Showing Increases and Decreases

	Passenger Cars	Trucks and Buses	Total Motor Vehicles	Per Cent Increase
1895	4		4	
1896	16		16	
1897	90		90	
1898	800		800	
1899	3,200		3,200	
1900	8,000		8,000	
1901	14,800		14,800	
1902	23,000		23,000	
1903	32,920		32,920	
1904	54,590	410	55,000	
1905	77,400	600	78,000	42
1906	105,900	1,100	107,000	37
1907	140,300	1,700	142,000	33
1908	194,400	3,100	197,500	39
1909	305,950	6,050	312,000	58
1910	458,500	10,000	468,500	50
1911	619,500	20,000	639,500	36
1912	902,600	41,400	944,000	48
1913	1,194,262	63,800	1,258,062	33
1914	1,625,739	85,600	1,711,339	36
1915	2,309,666	136,000	2,445,666	43
1916	3,297,996	215,000	3,512,996	44
1917	4,657,340	326,000	4,983,340	42
1918	5,621,617	525,000	6,146,617	23
1919	6,771,074	794,372	7,565,446	23
1920	8,225,859	1,006,082	9,231,941	22
1921	9,346,195	1,118,520	10,464,715	13
1922	10,864,128	1,375,725	12,239,853	17
1923	13,479,608	1,612,569	15,092,177	23
1924	15,460,649	2,134,724	17,595,373	17
1925	17,496,420	2,440,854	19,937,274	13
1926	19,237,171	2,764,222	22,001,393	10
1927	20,219,224	2,914,019	23,133,243	5
1928	21,379,125	3,113,999	24,493,124	6
1929	23,121,589	3,379,854	26,501,443	8
1930	23,183,241	3,473,831	26,657,072	0.2
1931*	22,567,381	3,426,515	25,993,896	−2.5
1932*	21,139,092	3,202,730	24,341,822	−6.4
1933	20,557,493	3,292,439	23,849,932	−2.0
1934*	21,535,199	3,346,268	24,881,467	4.3
1935*	22,630,715	3,595,042	26,225,757	5.2
1936*	24,161,820	3,929,889	28,091,709	7.2
1937*	25,476,786	4,172,484	29,649,270	5.6
1938*	25,031,225	4,127,390	29,158,615	−1.7
1939*	25,854,022	4,440,206	30,294,228	+4.0
1940*	26,918,183	4,648,141	31,566,324	+4.1
1941*	28,804,793	4,879,159	33,683,952	+6.9

* Automotive Industries count, all others Bureau of Public Roads.

How the Country's Automobiles are Distributed by States

(End-of-Year Figures 1941 and 1940)

	Passenger Cars		Trucks		Buses		Total Motor Vehicles		Per Cent Increase	Per Cent of Total	
	1941	1940	1941	1940	1941	1940	1941	1940		1941	1940
Alabama (1)	291,379	263,784	65,909	58,707	771	611	358,059	323,102	10.9	1.06	1.02
Arizona	116,000	112,868	28,450	25,243	350	(2) 427	144,800	138,538	4.6	.43	.44
Arkansas	229,978	190,589	82,000	66,158	(2) 2,000	430	313,978	257,177	22.0	.93	.81
California (9)	2,518,697	2,374,507	350,261	326,998	(4)	(4)	2,868,958	2,701,505	6.2	8.52	8.56
Colorado	336,702	321,810	31,044	30,298	(3)	(3)	367,746	352,108	4.3	1.09	1.12
Connecticut	463,003	410,414	80,621	74,456	1,241	1,037	544,865	485,907	12.0	1.62	1.54
Delaware	83,050	59,424	13,969	11,030	(4)	(4)	97,019	70,454	38.0	.29	.22
District of Columbia	154,333	146,612	13,571	13,928	1,623	1,374	169,527	161,914	4.8	.50	.51
Florida	466,199	413,723	87,706	79,790	1,529	1,697	555,434	495,210	12.0	1.65	1.57
Georgia	457,782	413,061	99,506	91,321	3,903	3,723	561,191	508,105	10.5	1.67	1.61
Idaho	134,377	129,360	36,515	33,538	139		171,031	162,898	5.1	.51	.52
Illinois	1,825,142	1,707,512	234,703	228,889	(4)	(4)	2,059,845	1,936,401	6.4	6.12	6.13
Indiana	929,115	858,526	135,634	134,215	1,570	1,321	1,066,519	994,062	7.1	3.17	3.15
Iowa	712,584	689,307	108,985	101,244	(4)	(4)	821,569	790,551	4.0	2.44	2.50
Kansas	503,921	480,008	113,872	102,665			617,793	582,673	6.0	1.83	1.85
Kentucky	410,000	387,068	82,000	75,891	900	768	492,900	463,727	6.3	1.46	1.47
Louisiana	347,593	280,663	93,305	81,793	(2) 3,022	(2) 2,973	443,920	365,429	21.7	1.32	1.16
Maine	168,000	161,792	43,200	43,914	300	190	211,500	205,896	2.8	.63	.65
Maryland (8)	424,403	388,383	62,428	59,160	1,145	1,152	487,976	448,695	9.0	1.45	1.42
Massachusetts	845,874	790,102	110,650	109,462	5,115	4,859	961,639	904,423	6.5	2.85	2.86
Michigan	1,144,551	1,077,534	129,589	117,500	(4)	(4)	1,274,140	1,195,034	6.8	3.78	3.79
Minnesota	772,932	746,500	129,710	124,602	282	249	902,924	871,351	3.7	2.68	2.76
Mississippi	202,624	196,478	64,119	60,927	490	1,608	267,233	259,013	3.0	.79	.82
Missouri	820,080	768,345	164,546	152,924	(4)	(4)	984,626	921,269	6.9	2.92	2.92
Montana	147,256	143,068	51,476	47,964	(4)	(4)	198,732	191,032	4.0	.59	.61
Nebraska	354,903	347,954	71,283	68,016	382	319	426,568	416,289	2.4	1.27	1.32
Nevada	27,736	26,507	6,843	6,571	(3)	(3)	34,579	33,078	4.6	.10	.10
New Hampshire (5)	109,816	105,034	26,216	30,062		288	136,032	135,384	0.5	.40	.43
New Jersey	1,008,370	944,630	140,088	137,126	5,462	5,210	1,153,920	1,086,966	6.5	3.43	3.44
New Mexico	98,251	95,257	30,806	30,090	814	784	129,871	126,131	2.8	.39	.40
New York	2,506,472	2,382,865	348,819	363,110	5,621	(2)32,738	2,860,912	2,778,713	3.0	8.49	8.80
North Carolina	558,499	503,494	96,320	87,457	1,340	995	656,159	591,946	11.0	1.95	1.87
North Dakota	152,020	145,746	40,788	37,019	111	157	192,919	182,922	5.5	.58	.58
Ohio (6)	1,800,000	1,728,275	192,000	190,654	(4)	(4)	1,992,000	1,918,929	4.0	5.91	6.08
Oklahoma	478,348	468,957	107,903	103,391	492	934	586,743	573,282	2.4	1.74	1.82
Oregon	353,213	325,130	75,538	67,756	689	692	429,440	393,578	9.0	1.27	1.25
Pennsylvania	1,999,868	1,859,394	274,967	263,112	6,472	5,778	2,281,307	2,128,284	7.2	6.77	6.74
Rhode Island	174,045	160,138	21,174	20,743	485	444	195,704	181,325	8.0	.58	.57
South Carolina (7)	313,731	272,303	50,638	39,070	(3)	978	364,369	312,351	16.8	1.08	.99
South Dakota	167,590	163,252	34,952	32,298	141	117	202,683	195,667	3.6	.60	.62
Tennessee	427,961	377,316	81,022	70,667	(3)	(3)	508,983	447,983	13.7	1.51	1.42
Texas	1,440,996	1,342,861	368,863	350,208	1,002	812	1,810,861	1,693,881	7.0	5.38	5.37
Utah	125,796	117,119	24,208	23,584	537	662	150,541	141,365	6.4	.45	.45
Vermont	87,048	83,922	10,327	9,628	111	95	97,486	93,645	4.0	.29	.30
Virginia	468,667	413,340	83,594	74,720	1,119	912	553,380	488,972	13.1	1.64	1.55
Washington	515,000	475,020	99,100	93,395	900	2,815	615,000	571,230	7.7	1.83	1.81
West Virginia	251,577	250,294	49,541	51,520	665	744	301,783	302,558	−0.3	.90	.96
Wisconsin	807,810	750,953	158,087	147,661	916	711	966,813	899,325	7.7	2.87	2.85
Wyoming	71,501	66,984	20,474	19,062	(3)	(3)	91,975	86,046	7.0	.27	.27
Total	28,804,793	26,918,183	4,827,520	4,569,537	51,639	78,604	33,683,952	31,566,324	6.9	100.00	100.00

(1)—For fiscal year ending September 30th.
(2)—Includes taxicabs.
(3)—Included with passenger cars.
(4)—Included with trucks.
(5)—April 1 to Dec. 31st.
(6)—1941 data, April 1 to Dec. 31; 1940 data, April 1, 1940 to Mar. 31, 1941.
(7)—From Nov. 1, 1940 to Oct. 31, 1941.
(8)—From April 1, 1941 to Jan. 31, 1942 for 1941 data; 1940 complete fiscal year April 1, 1940 to March 31, 1941.
(9)—130,987 light commercial vehicles registered as passenger cars have been transferred to trucks.

1941 Motorcycle, Trailer and Tax Exempt Vehicle Registrations

(As of December 31, 1941)

	Motorcycles	Trailers and Semi-Trailers	Passenger Car Trailers	Tax Exempt(1) Motor Vehicles not included in registrations
Alabama	1,182	5,757	(2)	4,714
Arizona	590	5,323	.....	2,806
Arkansas	825	19,000	(3)	.....
California	18,051	184,096	(3)	35,305
Colorado	1,308	1,887	(3)	.....
Connecticut	2,467	2,325	5,736	.....
Delaware	358	3,438	(3)	767
District of Columbia	688	848	.....	4,011
Florida	2,008	920	23,340	7,079
Georgia	1,945	13,682	2,905	.....
Idaho	594	22,630	(3)	2,134
Illinois	7,672	32,236	.....	.....
Indiana	6,091	69,552	5,011	7,795
Iowa	2,842	101,744	(3)	8,670
Kansas	1,418	5,953	(3)	.....
Kentucky	1,300	(2)	(2)	4,975
Louisiana	1,870	17,992	(2)	4,576
Maine	755	11,715	.....	.....
Maryland	2,159	6,870	.....	.....
Massachusetts	1,194	18,695	(3)	5,838
Michigan	5,076	159,007	10,769	.....
Minnesota	2,467	7,609	33,534	83,381
Mississippi	422	6,897	(3)	3,406
Missouri	2,450	46,052	(3)	.....
Montana	523	6,544	.....	2,921
Nebraska	1,321	32,984	15,255	.....
Nevada	169	1,797	(3)	954
New Hampshire	743	6,958	(3)	226
New Jersey	5,488	9,056	.....	13,990
New Mexico	436	3,414	(3)	234
New York	11,111	56,296	.....	31,368
North Carolina	1,910	47,775	(3)	14,406
North Dakota	230	347	1,540	903
Ohio	12,300	80,000	(3)	20,000
Oklahoma	1,211	7,770	1,044	7,710
Oregon	1,881	(4)	(4)	4,649
Pennsylvania	11,779	36,707	(3)	23,219
Rhode Island	954	1,381	(3)	.....
South Carolina	1,209	4,536	(3)	.....
South Dakota	444	25,782	(3)	1,751
Tennessee	1,854	(2)	(2)	7,070
Texas	4,741	61,397	(3)	19,590
Utah	550	649	(3)	1,942
Vermont	444	2,551	(3)	.....
Virginia	2,687	7,491	6,992	6,720
Washington	2,800	25,000	.....	.....
West Virginia	942	588	2,693	3,633
Wisconsin	3,590	6,937	1,984	10,747
Wyoming	298	11,466	(3)	1,143
Total	135,347	1,181,654	110,803	348,635

(1)—Includes cars, trucks and motorcycles.
(2)—Not registered.
(3)—Included with Trailers and Semi-trailers.
(4)—Included with trucks.

Distribution of all privately owned vehicles by population groups in the United States in 1940.[1]*

State	Vehicles owned by residents of—										
	Unincorporated areas	Incorporated places having a population of—									All places
		2,500 or less	2,501 to 5,000	5,001 to 10,000	10,001 to 25,000	25,001 to 50,000	50,001 to 100,000	100,001 to 250,000	250,001 to 500,000	More than 500,000	
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Alabama	158,260	30,212	19,051	18,826	24,824	16,974	39,428	.....	47,553	.....	346,128
Arizona	65,693	7,643	7,040	16,415	.....	16,972	30,153	.....	.....	.....	143,916
Arkansas	135,337	35,686	21,904	18,527	28,806	7,264	21,797	.....	.....	.....	269,321
California	711,039	101,424	117,872	196,265	249,323	203,479	253,116	212,321	98,648	814,002	2,957,489
Colorado	96,254	53,577	21,400	22,126	28,252	15,133	14,648	.....	103,802	.....	355,192
Connecticut	149,555	4,471	3,948	7,021	58,008	113,687	33,023	132,708	.....	.....	502,421
Delaware	29,789	10,005	7,135	1,835	.....	.....	.....	26,674	.....	.....	75,438
Florida	133,638	38,644	34,247	31,371	57,792	48,449	22,523	150,642	.....	.....	517,306
Georgia	211,885	55,397	28,744	28,800	45,970	6,345	58,208	.....	83,848	.....	519,197
Idaho	93,703	27,917	19,162	6,592	28,858	9,891	.....	.....	.....	.....	186,123
Illinois	372,725	207,011	89,458	130,277	148,621	163,616	159,738	33,967	.....	656,479	1,961,892
Indiana	396,505	118,101	39,120	70,870	72,896	93,986	75,653	90,665	116,553	.....	1,074,349
Iowa	245,669	240,222	74,808	62,309	57,177	64,683	90,398	57,679	.....	.....	892,945
Kansas	212,677	114,971	43,060	34,285	75,095	12,565	23,557	73,309	.....	.....	589,519
Kentucky	251,807	37,085	18,610	25,027	16,845	39,966	11,360	.....	64,285	.....	464,985
Louisiana	141,667	32,583	20,741	27,188	18,456	23,940	30,212	.....	85,923	.....	380,710
Maine	.....	82,498	33,980	31,785	35,380	15,288	18,762	.....	.....	.....	217,693
Maryland	195,994	30,561	16,758	8,882	23,519	16,886	.....	.....	.....	159,193	451,793
Massachusetts	.....	51,057	58,203	88,107	171,813	162,411	117,831	161,450	.....	110,033	920,905
Michigan	359,866	181,519	86,658	107,737	131,845	132,530	131,962	102,424	.....	483,555	1,718,096
Minnesota	337,503	173,101	44,407	67,175	59,862	9,281	.....	24,887	247,740	.....	963,956
Mississippi	151,520	29,289	15,717	13,825	31,922	8,160	14,283	.....	.....	.....	264,716
Missouri	277,405	136,276	50,855	54,947	80,201	23,540	33,241	.....	99,883	206,505	962,853
Montana	100,861	24,359	10,369	13,936	27,465	20,747	.....	.....	.....	.....	197,737
Nebraska	191,304	96,977	22,750	19,432	32,298	.....	31,055	64,572	.....	.....	458,388
Nevada	19,173	4,908	3,462	7,706	10,510	.....	.....	.....	.....	.....	45,759
New Hampshire	.....	56,690	18,957	10,062	26,043	15,240	15,248	.....	.....	.....	142,240
New Jersey	184,912	62,843	54,145	96,900	145,759	163,223	111,088	114,910	166,377	.....	1,100,157
New Mexico	45,981	11,729	8,721	22,486	22,202	17,199	.....	.....	.....	.....	128,318
New York	548,602	115,713	90,282	79,516	190,555	102,311	106,295	128,362	70,006	1,373,469	2,805,111
North Carolina	272,731	107,990	37,411	38,692	62,079	36,060	59,342	23,889	.....	.....	638,194
North Dakota	96,492	43,533	2,292	12,886	17,237	11,278	.....	.....	.....	.....	183,718
Ohio	610,340	169,238	81,843	126,800	157,112	141,755	73,526	201,109	292,656	214,046	2,068,425
Oklahoma	198,869	78,580	31,247	46,185	81,767	20,039	.....	126,871	.....	.....	583,558
Oregon	164,825	53,774	23,073	20,009	23,395	10,332	.....	.....	100,003	.....	395,411
Pennsylvania	618,186	171,266	148,993	196,630	268,022	104,439	174,675	76,247	.....	431,499	2,189,957
Rhode Island	.....	4,254	12,241	15,689	23,002	66,361	19,107	.....	48,791	.....	189,445
South Carolina	172,329	38,183	24,447	23,641	27,194	21,551	36,174	.....	.....	.....	343,519
South Dakota	95,850	55,574	12,145	15,900	24,467	15,595	.....	.....	.....	.....	219,531
Tennessee	189,006	31,485	28,567	27,325	27,021	5,512	.....	80,663	60,045	.....	449,624
Texas	598,736	147,971	113,567	124,364	132,384	86,492	151,551	54,135	345,353	.....	1,754,553
Utah	28,689	27,488	13,338	6,876	7,608	12,025	.....	45,047	.....	.....	141,071
Vermont	48,904	15,229	4,175	12,996	7,586	7,503	.....	.....	.....	.....	96,393
Virginia	326,246	24,426	14,873	19,874	15,040	29,060	28,731	55,464	.....	.....	513,714
Washington	243,254	59,910	27,682	13,874	39,708	26,964	.....	70,854	106,515	.....	588,761
West Virginia	134,588	37,371	16,247	21,680	27,396	17,375	52,967	.....	.....	.....	307,624
Wisconsin	278,303	147,758	56,808	43,550	70,118	129,426	38,979	.....	.....	146,523	911,465
Wyoming	38,351	19,303	5,965	5,536	27,112	.....	.....	.....	.....	.....	96,267
District of Columbia	.....	.....	.....	.....	.....	.....	.....	.....	.....	163,501	163,501
Total	9,935,023	3,405,802	1,736,478	2,092,737	2,938,545	2,265,533	2,069,631	2,108,849	2,137,981	4,758,805	33,449,384

(1) Includes automobiles, trucks, tractor-trucks, busses, trailers, semitrailers, and motorcycles.

* From a report of Public Roads Administration—Division of Control.

GASOLINE

Outlets, Prices and Amount Consumed

Filling Stations *

Year-End Data for 1939

STATE	No. of Stations	Sales	Average Sales per Station
Alabama	3,750	$54,249,000	$14,466
Arizona	1,196	15,484,000	12,946
Arkansas	3,037	26,061,000	8,581
California	15,218	242,183,000	15,914
Colorado	3,109	35,106,000	11,291
Connecticut	2,930	42,238,000	14,415
Delaware	640	8,390,000	13,109
District of Columbia	495	18,163,000	36,692
Florida	4,653	51,064,000	10,974
Georgia	5,054	49,350,000	9,764
Idaho	1,361	16,443,000	12,081
Illinois	12,097	158,156,000	13,073
Indiana	8,252	88,916,000	10,775
Iowa	6,967	72,059,000	10,343
Kansas	5,726	49,592,000	8,660
Kentucky	3,540	33,836,000	9,558
Louisiana	2,721	30,781,000	11,312
Maine	2,173	21,421,000	9,857
Maryland	2,255	30,444,000	13,500
Massachusetts	5,746	84,501,000	14,706
Michigan	10,941	140,975,000	12,885
Minnesota	6,692	78,518,000	11,733
Mississippi	2,203	23,674,000	10,746
Missouri	9,499	82,088,000	8,641
Montana	1,349	19,685,000	14,592
Nebraska	3,561	40,499,000	11,372
Nevada	352	$6,253,000	$17,764
New Hampshire	1,229	13,058,000	10,624
New Jersey	6,580	85,371,000	12,974
New Mexico	1,292	12,546,000	9,710
New York	15,652	219,269,000	14,009
North Carolina	7,782	65,331,000	8,395
North Dakota	1,539	15,093,000	9,807
Ohio	12,800	168,228,000	13,142
Oklahoma	6,106	47,066,000	7,708
Oregon	2,847	34,642,000	12,167
Pennsylvania	14,031	160,927,000	11,469
Rhode Island	1,116	15,296,000	13,706
South Carolina	3,214	27,591,000	8,584
South Dakota	2,030	20,173,000	9,937
Tennessee	3,422	43,957,000	12,845
Texas	15,738	150,127,000	9,539
Utah	1,184	16,132,000	13,625
Vermont	963	9,508,000	9,873
Virginia	5,083	49,625,000	9,762
Washington	4,413	56,306,000	12,759
West Virginia	2,516	26,398,000	10,492
Wisconsin	5,942	74,175,000	12,483
Wyoming	862	11,547,000	13,395
Totals	241,858	$2,822,495,000	$11,670†

* From the Retail Census of Business, 1939. Data are for places of retail business whose main source of revenue is from the sale of gasoline and oil. † U. S. average per station.

Gasoline Prices†

Average 50 Representative Cities in the United States

	Cents per Gallon		
	Service Station (Ex. Tax)	State Gasoline Tax	Service Station (Inc. Tax)
1926	20.97	2.41	23.38
1927	16.28	2.81	21.09
1928	17.90	3.04	20.94
1929	17.92	3.50	21.42
1930	16.16	3.79	19.95
1931	12.98	4.00	16.98
1932	13.30	4.63*	17.93
1933	12.41	5.41*	17.82
1934	13.64	5.21*	18.85
1935	13.55	5.29*	18.84
1936	14.10	5.35*	19.45
1937	14.59	5.40*	19.99
1938	14.07	5.44*	19.51
1939	13.31	5.44*	18.75
1940	12.75	5.66*	18.41
1941	13.30	5.93*	19.23

* Including the Federal tax of one cent which became effective June 21, 1932. On June 17, 1933 it was increased to 1½ cents, and on Jan. 1, 1934 it was reduced to 1 cent. July 1, 1940 it was again increased to 1½ cents per gallon.

† Courtesy American Petroleum Institute.

Annual Mileage of Passenger Cars and Gasoline Consumption per Mile.*

Year of Operation	Average mileage traveled during year [1]	Average number of miles traveled per gallon of gasoline [2]
First	12,980	16.1
Second	12,060	15.7
Third	10,620	15.6
Fourth	9,580	15.4
Fifth	8,820	15.0
Sixth	8,120	15.3
Seventh	7,500	15.5
Eighth	6,630	15.7
Ninth	5,950	15.6
Tenth	5,070	15.3
Eleventh	4,550	15.3
Twelfth	4,120	15.3

(1)—Based on data from 35 states. (2)—Based on data from 30 states.
*—Report of Public Roads Administration—Division of Control.

Highway Motor-Fuel Usage By States

A large part of this increase can be attributed to military activity rather than to increased civilian consumption.

	1941†	1940*	Per Cent Increase	Per Cent of Total 1941	Per Cent of Total 1940
Alabama	310,540,000	250,234,000	24.10	1.27	1.14
Arizona	113,943,000	99,998,000	13.94	.47	.45
Arkansas	207,553,000	178,275,000	16.42	.85	.81
California	2,039,243,000	1,766,144,000	15.46	8.35	8.03
Colorado	224,632,000	210,964,000	6.48	.92	.96
Connecticut	402,074,000	365,429,000	10.03	1.65	1.66
Delaware	64,401,000	59,647,000	7.97	.26	.27
Dist. of Col.	188,150,000	165,195,000	13.90	.77	.75
Florida	442,394,000	377,489,000	17.19	1.81	1.72
Georgia	429,476,000	374,300,000	14.74	1.76	1.70
Idaho	106,367,000	97,510,000	9.08	.43	.44
Illinois	1,534,596,000	1,419,805,000	8.08	6.28	6.45
Indiana	730,039,000	642,589,000	13.61	2.99	2.92
Iowa	521,794,000	490,454,000	6.39	2.14	2.23
Kansas	373,854,000	349,282,000	7.04	1.53	1.59
Kentucky	328,953,000	283,830,000	15.90	1.35	1.29
Louisiana	287,425,000	249,757,000	15.08	1.18	1.14
Maine	164,683,000	150,002,000	9.79	.67	.68
Maryland	340,113,000	294,208,000	15.60	1.39	1.34
Massachusetts	769,739,000	716,216,000	7.47	3.15	3.26
Michigan	1,223,296,000	1,101,900,000	11.02	5.01	5.01
Minnesota	515,041,000	498,617,000	3.29	2.11	2.27
Mississippi	235,800,000	200,565,000	17.57	.96	.91
Missouri	726,650,000	664,044,000	9.43	2.97	3.02
Montana	119,179,000	109,723,000	8.62	.49	.50
Nebraska	225,075,000	211,823,000	6.26	.92	.96
Nevada	43,663,000	38,694,000	12.84	.18	.18
New Hampshire	96,601,000	91,413,000	5.67	.39	.41
New Jersey	948,809,000	869,669,000	9.10	3.88	3.95
New Mexico	103,116,000	96,903,000	6.41	.42	.44
New York	1,953,712,000	1,876,170,000	4.13	8.00	8.53
N. Carolina	526,602,000	444,953,000	18.35	2.16	2.02
N. Dakota	91,932,000	85,779,000	7.17	.38	.39
Ohio	1,467,160,000	1,323,196,000	10.88	6.01	6.01
Oklahoma	407,799,000	382,228,000	6.69	1.67	1.74
Oregon	270,556,000	235,787,000	14.75	1.11	1.07
Pennsylvania	1,632,944,000	1,517,775,000	7.59	6.69	6.90
Rhode Island	145,469,000	132,074,000	10.14	.60	.60
S. Carolina	260,035,000	220,359,000	18.00	1.06	1.00
S. Dakota	120,747,000	114,953,000	5.04	.49	.52
Tennessee	349,415,000	300,562,000	16.25	1.43	1.37
Texas	1,437,026,000	1,204,397,000	19.32	5.88	5.47
Utah	110,678,000	101,218,000	9.35	.45	.46
Vermont	72,474,000	68,661,000	5.55	.30	.31
Virginia	475,761,000	400,159,000	18.89	1.95	1.82
Washington	410,841,000	356,828,000	15.14	1.68	1.62
West Virginia	234,681,000	216,629,000	8.33	.96	.98
Wisconsin	570,495,000	532,770,000	7.08	2.34	2.43
Wyoming	69,950,000	62,179,000	12.50	.29	.28
Totals	24,425,476,000	22,001,356,000	11.12	100.00	100.00

*—Federal Works Agency—Public Roads Administration. Includes, Federal, State, County and Municipal highway usage.
†—Estimated.

Automotive Equipment on Farms*

	PASSENGER CARS			TRUCKS			TRACTORS		
	Number of Cars	Per Cent of Farms having Cars	Average Year Latest Model	Number of Trucks	Per Cent of Farms having Trucks	Average Year Latest Model	Number of Tractors	Per Cent of Farms having Tractors	Average Year Latest Model
Alabama	48,473	19.9	1933	15,257	6.1	1935	7,638	2.9	1935
Arizona	10,401	42.9	1934	4,284	19.3	1934	4,129	15.6	1934
Arkansas	48,571	21.2	1932	19,674	8.5	1935	12,564	4.3	1935
California	150,534	79.9	1934	58,015	35.1	1931	55,191	33.1	1931
Colorado	50,426	79.5	1933	16,850	29.4	1933	21,423	37.1	1932
Connecticut	18,821	67.2	1934	11,001	40.8	1932	5,349	22.8	1931
Delaware	8,164	76.0	1934	2,567	24.6	1933	2,661	25.9	1934
District of Columbia	39	46.2	1936	39	49.2	1934	25	18.5	1935
Florida	27,393	39.4	1933	14,360	18.7	1933	7,703	10.2	1932
Georgia	77,049	33.4	1933	21,693	9.2	1934	9,327	3.8	1935
Idaho	38,184	75.1	1934	12,002	25.1	1934	11,103	23.3	1934
Illinois	210,555	82.5	1934	42,515	18.7	1933	126,069	51.8	1934
Indiana	172,981	80.8	1933	29,732	14.9	1933	73,221	37.1	1934
Iowa	236,601	90.2	1934	26,352	11.7	1933	128,516	55.3	1934
Kansas	150,403	83.3	1933	42,617	25.3	1932	95,139	53.6	1932
Kentucky	98,699	35.2	1933	19,100	7.1	1935	11,927	4.4	1933
Louisiana	34,891	21.4	1934	17,005	10.4	1934	9,476	4.6	1935
Maine	25,540	58.2	1933	13,118	30.0	1933	8,093	19.3	1930
Maryland	38,848	70.5	1934	13,058	27.2	1932	10,335	22.4	1932
Massachusetts	23,734	61.9	1935	12,465	31.1	1933	7,335	20.5	1930
Michigan	181,209	81.5	1933	33,095	16.2	1932	66,524	33.1	1933
Minnesota	208,693	87.5	1933	38,617	18.3	1932	105,075	48.6	1933
Mississippi	55,702	18.3	1933	18,565	6.0	1935	10,577	2.7	1935
Missouri	176,285	63.5	1932	31,771	11.7	1934	45,155	16.4	1933
Montana	35,699	72.6	1933	21,037	43.8	1932	22,587	47.6	1931
Nebraska	126,269	88.8	1932	24,090	18.6	1931	70,761	53.4	1933
Nevada	3,158	66.1	1934	1,683	39.4	1934	681	16.2	1933
New Hampshire	12,901	65.2	1933	6,469	33.2	1933	3,129	17.2	1929
New Jersey	24,223	71.7	1934	17,106	52.6	1933	12,920	42.0	1933
New Mexico	15,731	40.3	1934	7,117	18.7	1935	5,832	14.6	1934
New York	139,718	74.3	1933	55,285	31.7	1932	58,906	34.7	1931
North Carolina	127,476	42.4	1933	20,621	6.9	1935	12,756	4.3	1931
North Dakota	71,907	83.0	1932	21,518	27.0	1930	49,361	59.2	1931
Ohio	231,368	80.8	1933	35,169	16.6	1932	89,999	35.6	1933
Oklahoma	112,369	57.3	1933	42,402	14.8	1934	45,369	22.9	1934
Oregon	58,797	78.6	1933	16,825	24.1	1932	17,077	25.0	1932
Pennsylvania	157,988	73.8	1934	44,323	23.1	1933	54,842	30.2	1932
Rhode Island	2,888	71.0	1934	1,982	48.2	1933	1,008	28.9	1931
South Carolina	63,653	42.8	1933	8,242	5.4	1935	4,791	3.1	1934
South Dakota	72,675	86.3	1932	14,269	18.6	1930	44,154	55.1	1932
Tennessee	85,233	31.8	1933	18,908	7.2	1935	11,817	4.4	1934
Texas	277,664	59.5	1933	56,707	12.3	1933	98,923	20.6	1935
Utah	16,759	60.4	1934	6,238	22.8	1934	3,041	11.4	1934
Vermont	17,979	64.2	1933	6,172	23.1	1934	3,566	14.4	1930
Virginia	86,785	43.0	1933	23,272	11.9	1934	11,951	6.2	1931
Washington	70,490	74.5	1933	22,228	30.5	1932	18,019	20.5	1931
West Virginia	38,051	34.9	1933	12,445	11.6	1934	3,656	3.5	1929
Wisconsin	188,312	84.1	1933	50,883	25.4	1931	81,195	41.2	1931
Wyoming	13,852	72.5	1934	6,341	37.0	1934	6,534	37.3	1932
Total	4,144,136	58.1	1933	1,047,084	15.5	1933	1,567,430	23.1	1933

*—Census of Agriculture as of April 1, 1940.

Farm Expenditures for Gasoline, Oil, Kerosene*

	No. of Farms Reporting	Expenditures for Gasoline, Oil, Kerosene, etc.	Expenditures per Farm Reporting
Alabama	62,968	$ 2,278,319	$ 36.18
Arizona	9,198	1,871,790	203.49
Arkansas	51,494	3,271,136	63.52
California	76,238	20,965,379	274.99
Colorado	30,144	5,471,584	181.51
Connecticut	10,634	1,566,680	147.32
Delaware	3,024	395,390	130.75
District of Columbia	29	3,552	122.48
Florida	21,926	3,265,479	148.93
Georgia	72,609	3,455,679	47.59
Idaho	22,307	3,653,107	163.76
Illinois	143,674	22,790,010	158.62
Indiana	91,852	9,933,964	108.15
Iowa	164,265	21,995,454	133.90
Kansas	114,341	17,909,246	156.63
Kentucky	75,820	2,922,897	385.50
Louisiana	56,079	3,979,734	70.97
Maine	16,996	1,647,260	96.92
Maryland	16,668	1,918,993	115.13
Massachusetts	12,879	2,132,797	165.60
Michigan	95,483	7,742,957	81.09
Minnesota	158,471	22,320,700	140.85
Mississippi	55,734	3,219,364	57.76
Missouri	129,631	7,802,401	60.18
Montana	30,837	6,569,751	213.04
Nebraska	102,570	$14,243,518	$138.86
Nevada	2,358	456,080	193.41
New Hampshire	6,301	591,924	93.94
New Jersey	15,507	3,124,235	201.47
New Mex'co	14,009	2,042,336	145.78
New York	87,847	10,154,356	115.59
North Carolina	82,330	3,778,842	45.89
North Dakota	61,360	11,928,007	194.39
Ohio	116,625	11,055,006	94.79
Oklahoma	87,931	9,027,718	102.66
Oregon	31,033	4,868,263	156.87
Pennsylvania	84,756	7,652,630	90.29
Rhode Island	1,787	335,237	187.59
South Carolina	36,022	1,967,535	54.62
South Dakota	56,709	8,879,348	156.57
Tennessee	74,205	2,901,698	39.10
Texas	199,324	23,416,570	117.47
Utah	9,590	1,142,955	119.18
Vermont	12,351	968,725	78.43
Virginia	61,730	3,052,573	49.45
Washington	39,075	6,268,152	160.41
West Virginia	25,379	993,703	39.15
Wisconsin	243,957	13,409,705	93.15
Wyoming	10,557	1,895,968	179.60
Total	2,886,614	$323,238,707	$111.97†

†—U. S. Average. *—1940 Census of Agriculture

AUTOMOTIVE TAXES

1941 Federal Automotive Taxes—$581,427,564

Source of Revenue	1941	1940	1939	1938	1937
Gasoline (90% automotive)	$334,022,203	$253,488,385	$193,695,592	$180,792,717	$182,722,842
Lubricating Oils (64% automotive)	28,065,190	22,028,833	19,095,351	19,517,017	21,556,218
Automobiles and Motorcycles	101,463,603	71,275,162	51,063,559	29,405,044	64,721,887
Trucks	14,253,273	9,285,246	7,144,898	5,230,378	8,811,651
Tires	53,277,301	37,615,911	34,512,593	22,083,225	33,500,198
Inner Tubes	10,872,019	7,475,181	6,654,734	4,688,494	6,587,806
Floor Tax on Tires and Tubes in Stock (1)	7,709,100	....	....	....	....
Parts and Accessories (2)	18,561,870	12,147,151	8,956,584	7,067,611	9,619,926
Use of Motor Vehicles (3)	617	....	....	....	....
Transportation of Oil by Pipe Line (4)	13,203,388	12,017,232	10,971,177	11,599,693	12,304,203
Total-Federal Automotive Taxes	$581,427,564	$425,333,101	$332,094,488	$280,384,179	$339,824,731

State Automotive Taxes *(Exclusive of State or Local Sales Tax)*

Gasoline	$936,675,000	$864,472,000	$816,433,000	$766,853,000	$756,930,000
Registration Fees	463,517,000	438,010,000	412,494,000	388,825,000	399,613,000
Total-State Taxes	$1,400,192,000	$1,302,482,000	$1,228,927,000	$1,155,678,000	$1,156,543,000
Grand Total—Federal and State Taxes	$1,981,619,564	$1,727,815,101	$1,561,021,488	$1,436,062,179	$1,496,367,731
Average Tax per Motor Vehicle	$58.88	$54.71	$51.52	$49.25	$50.46

*—Compiled by National Highway Users Conference from statements of Bureau of Internal Revenue.

(1)—New tax effective October 1, 1941.

(2)—Does not include unknown amount of taxes on radios installed in motor vehicles.

(3)—Advance payments of use tax effective February 1, 1942.

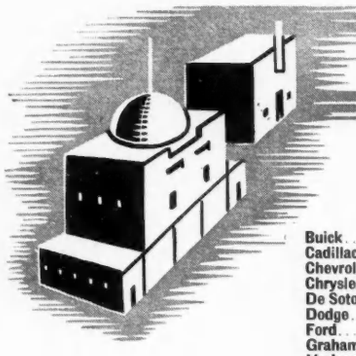
(4)—The automotive portion of this tax is not readily determinable.

1941* State Tax Revenue from Motor Vehicles $1,400,192,000

(Exclusive of State or Local Sales Tax)

STATE	State Tax—Cents per Gallon	State Gasoline Tax Receipts			State Registration Fees			Total State Tax Receipts from Gasoline and Registration Fees		State Taxes per Motor Vehicle	
		1941	1940	Per Cent Change	1941	1940	Per Cent Change	1941	1940	1941	1940
Alabama	6	$17,480,000	$15,470,000	+13.0	$4,027,000	$4,548,000	−11.2	$21,507,000	$20,018,000	$60.06	$61.95
Arizona	5	5,300,000	4,767,000	+11.1	1,400,000	1,225,000	+14.2	6,700,000	5,992,000	46.27	43.25
Arkansas	6½	13,108,000	11,312,000	+15.8	4,058,000	3,399,000	+19.5	17,166,000	14,711,000	54.67	57.20
California	3	53,000,000	51,960,000	+ 2.1	29,500,000	27,914,000	+ 5.9	82,500,000	79,874,000	28.74	29.56
Colorado	4	8,833,000	8,291,000	+16.5	2,715,000	2,797,000	− 3.0	11,548,000	11,088,000	31.40	31.49
Connecticut	3	11,891,000	11,032,000	+ 7.2	8,023,000	7,385,000	+ 9.0	19,824,000	18,417,000	36.38	37.90
Delaware	4	2,750,000	2,322,000	+18.5	1,372,000	1,252,000	+ 9.6	4,122,000	3,574,000	42.48	59.72
District of Columbia	2	3,153,000	3,222,000	− 2.2	1,900,000	1,751,000	+ 8.5	5,053,000	4,973,000	29.80	30.71
Florida	7	27,400,000	26,929,000	+ 2.0	8,386,000	8,002,000	+ 4.9	35,786,000	34,931,000	64.42	70.53
Georgia	6	23,000,000	22,809,000	+ 1.0	2,226,000	2,768,000	−19.6	25,226,000	25,577,000	44.95	50.33
Idaho	5.1	5,232,000	4,822,000	+ 8.4	1,590,000	1,401,000	+13.6	6,822,000	6,223,000	39.88	38.20
Illinois	3	44,763,000	41,389,000	+ 8.2	25,809,000	24,760,000	+ 4.5	70,572,000	66,120,000	34.26	34.14
Indiana	4	28,540,000	25,494,000	+11.8	11,193,000	10,596,000	+ 5.8	39,738,000	36,090,000	37.25	36.30
Iowa	3	15,624,000	14,592,000	+ 7.1	14,389,000	12,987,000	+11.0	30,013,000	27,579,000	36.53	34.88
Kansas	3	11,000,000	10,402,000	+ 6.0	4,717,000	4,012,000	+17.5	15,717,000	14,414,000	25.44	24.73
Kentucky	5	16,140,000	14,713,000	+ 9.8	5,950,000	5,509,000	+ 8.0	22,090,000	20,222,000	44.81	43.60
Louisiana	7	21,433,000	18,584,000	+15.4	5,750,000	5,392,000	+ 6.8	27,183,000	23,976,000	61.23	65.61
Maine	4	6,664,000	5,940,000	+12.2	4,500,000	4,162,000	+ 8.0	11,164,000	10,102,000	52.78	49.06
Maryland (1)	4	13,070,000	11,448,000	+13.7	5,958,000	5,530,000	+ 7.9	19,028,000	16,978,000	38.99	37.83
Massachusetts	3	22,768,000	21,401,000	+ 6.2	7,967,000	7,319,000	+ 9.0	30,735,000	28,720,000	31.96	31.75
Michigan	3	35,458,000	32,466,000	+ 9.1	27,005,000	24,115,000	+12.2	62,463,000	56,581,000	49.02	47.34
Minnesota	4	18,851,000	18,345,000	+ 2.8	10,977,000	10,305,000	+ 6.2	29,828,000	28,650,000	33.03	32.87
Mississippi	6	13,836,000	11,931,000	+15.8	2,739,000	3,009,000	− 9.0	16,566,000	14,940,000	61.99	57.68
Missouri	2	15,000,000	13,301,000	+13.0	11,709,000	10,750,000	+ 9.0	26,709,000	24,051,000	27.12	26.10
Montana	5	5,463,000	5,088,000	+ 8.0	2,000,000	1,721,000	+16.2	7,463,000	6,789,000	37.55	35.53
Nebraska	5	12,202,000	11,742,000	+ 3.9	2,926,000	2,839,000	+ 3.2	15,128,000	14,581,000	35.46	35.02
Nevada	4	1,597,000	1,485,000	+ 7.3	347,000	313,000	+11.0	1,944,000	1,798,000	56.21	54.35
New Hampshire	4	3,716,000	3,616,000	+ 2.8	3,310,000	3,052,000	+ 8.5	7,026,000	6,668,000	51.64	49.25
New Jersey	3	24,800,000	24,226,000	+ 2.4	24,322,000	22,562,000	+ 8.0	49,122,000	46,788,000	42.56	43.04
New Mexico	5	5,076,000	4,676,000	+ 8.5	2,165,000	1,994,000	+ 8.6	7,241,000	6,670,000	55.75	52.88
New York	4	74,458,000	73,055,000	+ 2.0	53,433,000	55,944,000	− 4.4	127,891,000	128,999,000	44.70	45.42
North Carolina	6	28,664,000	26,274,000	+ 9.1	9,969,000	8,174,000	+22.0	38,633,000	34,448,000	58.87	58.19
North Dakota	4	3,515,000	3,351,000	+ 4.8	2,023,000	1,661,000	+21.7	5,538,000	5,012,000	28.70	27.39
Ohio	4	59,292,000	50,789,000	+16.8	31,353,000	30,376,000	+ 3.4	90,645,000	81,165,000	45.50	42.29
Oklahoma	5½	18,613,000	14,771,000	+26.0	6,367,000	6,435,000	− 1.0	24,980,000	21,206,000	44.94	36.99
Oregon	5	14,713,000	11,359,000	+29.6	4,375,000	3,345,000	+30.8	19,088,000	14,705,000	44.44	37.36
Pennsylvania	4	63,000,000	62,487,000	+ 1.0	40,843,000	38,891,000	+ 5.0	103,843,000	101,378,000	45.51	47.63
Rhode Island	3	4,272,000	3,941,000	+ 8.3	3,391,000	3,218,000	+ 5.6	7,663,000	7,159,000	39.15	39.48
South Carolina	6	15,815,000	13,622,000	+16.0	2,577,000	2,104,000	+22.6	18,392,000	15,726,000	50.47	50.34
South Dakota	4	4,548,000	4,453,000	+ 2.0	1,879,000	1,794,000	+ 4.8	6,427,000	6,247,000	31.70	31.92
Tennessee	7	24,162,000	21,112,000	+14.5	5,638,000	5,330,000	+ 6.5	29,830,000	26,442,000	58.60	59.02
Texas	4	51,910,000	47,518,000	+ 9.2	24,506,000	22,422,000	+ 9.2	76,416,000	69,940,000	42.19	41.26
Utah	4	4,390,000	4,055,000	+ 8.2	1,326,000	1,227,000	+ 8.0	5,716,000	5,282,000	37.96	37.36
Vermont	4	2,935,000	2,781,000	+ 5.5	2,773,000	2,625,000	+ 5.5	5,708,000	5,406,000	58.55	57.72
Virginia	5	23,265,000	19,404,000	+20.0	8,164,000	7,159,000	+14.0	31,429,000	26,563,000	56.79	54.32
Washington	5	19,320,000	17,172,000	+12.8	4,030,000	3,728,000	+ 7.1	23,320,000	20,900,000	37.91	36.58
West Virginia	5	11,000,000	10,680,000	+ 3.2	6,057,000	6,529,000	− 7.2	17,057,000	17,209,000	56.52	56.87
Wisconsin	4	22,737,000	21,150,000	+ 7.6	15,235,000	13,075,000	+16.8	37,972,000	34,225,000	39.27	38.05
Wyoming	4	3,008,000	2,772,000	+ 8.2	652,000	603,000	+ 8.0	3,660,000	3,375,000	39.79	39.22
Total		$936,675,000	$864,472,000	+ 8.5	$453,517,000	$438,010,000	+ 5.8	$1,400,192,000	$1,332,482,000	$41.60†	$41.26†

†—U. S. Average per Vehicle.



CENSUS OF

Car Dealer Franchises by Makes—By Years*

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Buick	3,003	2,608	2,472	2,273	2,303	2,465	2,516	2,750	2,657	2,572	2,491	2,544
Cadillac-La Salle	700	654	602	563	541	649	648	803	695	710	694	748
Chevrolet	9,558	9,412	9,039	8,885	8,578	8,667	8,776	8,752	8,406	8,100	7,962	7,795
Chrysler	3,007	3,454	2,999	3,511	4,360	4,309	4,097	3,837	3,383	3,276	3,328	3,333
De Soto	1,369	1,234	1,252	1,359	1,880	3,406	2,888	2,926	2,688	2,512	2,469	2,465
Dodge	2,842	2,663	2,722	2,772	3,297	3,772	4,087	4,380	4,113	3,959	3,733	3,883
Ford	8,833	8,735	8,280	7,480	7,388	7,948	8,301	8,245	7,825	7,404	7,158	7,034
Graham	1,469	1,206	1,079	920	782	1,120	958	877	611	460	.....	.....
Hudson	2,863	2,270	1,761	1,842	2,641	3,023	3,263	3,390	2,681	2,436	2,667	2,342
Hupmobile	1,084	991	854	699	763	771	.....	302	191	.....	.....	.....
Lincoln-Zephyr	.....	.....	.....	.....	.....	.....	.....	.....	1,695	2,211	2,356	2,516
Mercury	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,116	3,655	4,300
Nash	1,884	1,677	1,430	1,201	1,283	1,400	1,314	1,753	1,533	1,756	1,775	1,792
Oldsmobile	1,592	1,426	1,351	1,418	1,611	2,227	2,454	2,588	2,493	2,424	2,449	2,543
Packard	721	682	624	540	486	843	1,128	1,283	1,098	1,031	1,131	1,117
Plymouth	7,218	7,351	6,276	7,642	9,537	11,487	11,072	11,143	10,184	9,747	9,530	9,670
Pontiac	3,435	2,887	2,503	2,336	2,314	2,791	3,413	4,006	3,411	3,439	3,370	3,370
Studebaker	1,971	1,999	1,927	1,733	1,986	1,832	2,080	2,335	1,873	2,480	3,316	2,792
Willys-Overland	3,783	2,904	2,739	.....	.....	.....	580	1,476	1,143	913	1,584	1,298
Total	55,332	52,153	47,910	45,174	49,750	56,710	57,575	60,846	56,680	57,546	59,668	59,542
Miscellaneous	7,409	7,020	5,527	4,854	3,852	3,046	1,779	2,289	366	488	628	161
Total Representations	62,741	59,173	53,437	50,028	53,602	59,756	59,354	63,135	57,046	58,034	60,296	59,703

* Direct Mail Division—Chilton Company, as of January 1, 1941.

Note—The term "Passenger Car Franchises" refers to retail outlets of any given make. A dealer organization oftens handles more than one make of passenger car.

Car Dealer Franchises by States, by Makes*

STATES	Buick	Cadillac	Chevrolet	Chrysler	De Soto	Dodge	Ford	Hudson	Lincoln-Zephyr	Mercury	Nash	Oldsmobile	Packard	Plymouth	Pontiac	Studebaker	Willys	Miscellaneous	Total
Alabama	18	6	102	33	24	39	89	23	13	26	10	20	7	96	30	27	24	1	588
Arizona	14	3	29	18	10	16	28	3	13	14	10	13	4	44	17	13	0	0	249
Arkansas	14	4	83	30	15	42	84	17	19	46	11	13	8	87	27	27	8	0	535
California	143	56	288	142	145	211	309	118	278	288	79	145	86	498	154	170	75	10	3,195
Colorado	29	8	94	49	17	44	78	26	22	49	22	32	9	110	40	33	10	0	672
Connecticut	43	25	86	54	46	55	86	37	47	56	27	39	20	155	53	41	20	2	892
Delaware	7	3	16	6	6	7	11	0	10	10	3	6	4	19	9	7	3	0	127
District of Columbia	2	1	8	7	8	7	13	10	14	14	4	4	5	23	5	5	5	4	139
Florida	30	16	93	40	21	47	102	23	34	36	20	32	25	108	43	33	30	5	738
Georgia	35	7	135	61	22	66	140	27	24	43	13	26	13	149	47	31	17	0	856
Idaho	17	6	57	17	22	33	52	30	16	32	19	23	9	27	23	30	11	4	473
Illinois	196	42	412	175	131	213	409	144	117	303	143	157	76	519	176	166	85	8	3,472
Indiana	90	27	216	92	86	108	179	105	55	112	45	85	34	286	111	104	27	5	1,767
Iowa	107	12	389	110	70	126	272	86	52	142	46	80	32	306	109	90	30	5	2,064
Kansas	59	7	230	71	51	96	210	47	39	172	36	66	15	218	75	48	25	1	1,466
Kentucky	56	9	115	61	32	69	107	23	25	73	23	48	10	162	59	36	21	3	932
Louisiana	19	7	84	33	22	47	85	16	32	44	17	24	12	102	33	18	9	0	604
Maine	16	8	70	27	18	35	62	28	11	26	23	19	9	80	34	23	23	4	516
Maryland	27	11	64	47	42	48	74	27	52	57	21	32	15	137	35	35	21	3	748
Massachusetts	54	39	167	98	87	105	138	75	43	94	49	91	41	290	109	90	30	6	1,606
Michigan	126	32	360	124	100	176	318	146	105	217	93	142	52	400	162	142	68	6	2,769
Minnesota	84	8	323	141	83	124	286	75	13	24	78	58	19	348	85	108	30	4	1,891
Mississippi	20	6	103	35	15	40	97	15	18	37	15	18	8	90	35	18	7	0	577
Missouri	46	9	248	97	77	107	165	33	34	86	41	51	22	281	71	89	17	2	1,476
Montana	21	6	77	29	16	46	72	13	9	37	20	21	14	91	21	37	11	0	541
Nebraska	43	2	179	73	25	56	152	29	33	123	19	20	8	154	48	49	13	1	1,027
Nevada	8	2	15	7	6	10	19	3	7	13	4	5	3	23	9	7	2	0	143
New Hampshire	16	5	51	17	14	21	39	14	7	21	9	14	9	52	21	9	7	0	326
New Jersey	62	33	151	96	84	105	147	61	136	132	57	79	38	285	92	91	35	10	1,694
New Mexico	18	4	41	17	10	15	37	10	11	18	5	18	5	42	15	16	3	0	285
New York	172	77	462	242	193	299	425	194	301	334	137	217	98	734	263	201	119	19	4,487
North Carolina	50	16	146	74	27	72	154	43	53	59	20	40	22	173	88	52	29	0	1,118
North Dakota	24	2	131	42	27	44	118	22	10	36	12	18	2	113	19	42	17	2	681
Ohio	151	45	401	172	171	200	338	173	139	233	141	147	77	543	199	147	74	12	3,363
Oklahoma	42	8	167	44	33	62	162	25	60	91	16	42	5	139	63	22	7	0	989
Oregon	29	8	92	35	31	42	71	27	33	56	25	32	14	108	45	35	19	3	705
Pennsylvania	191	73	479	272	227	294	439	213	245	299	182	218	107	793	276	253	133	18	4,712
Rhode Island	9	3	23	17	17	14	19	10	4	10	9	13	6	48	17	13	11	0	243
South Carolina	26	7	95	37	20	39	82	20	16	16	6	23	10	96	42	26	7	0	568
South Dakota	22	3	114	39	21	36	111	12	12	94	12	14	5	96	19	15	5	0	630
Tennessee	23	6	110	39	35	59	93	17	31	56	16	26	12	133	44	34	12	1	747
Texas	105	26	430	175	98	196	384	86	85	145	39	103	31	469	186	97	44	4	2,703
Utah	13	4	37	14	19	19	37	10	13	23	9	11	5	50	18	13	12	1	308
Vermont	12	6	38	16	12	21	33	13	19	23	8	15	10	49	20	10	9	0	314
Virginia	37	13	145	74	39	72	151	22	44	80	15	37	23	185	78	29	15	3	1,062
Washington	46	10	128	61	53	88	128	42	21	80	35	46	21	202	59	56	39	7	1,122
West Virginia	31	11	94	47	34	50	73	30	24	46	19	32	16	131	42	28	17	1	726
Wisconsin	128	23	376	111	91	140	315	106	108	247	123	115	38	332	130	111	59	6	2,559
Wyoming	13	3	41	15	12	22	41	13	9	26	6	13	3	49	14	15	3	0	298
Total	2,544	748	7,794	3,333	2,465	3,883	7,034	2,342	2,516	4,300	1,792	2,543	1,117	9,670	3,370	2,792	1,298	161	59,703

* Direct Mail Division—Chilton Company, as of January, 1942.

CAR DEALERS

Car Dealer Franchises—By Population Groups*

(With Percentage of Total for Each Population Group)

CAR MAKE	Population Division 0-1,000	1,000-2,500	2,500-5,000	5,000-10,000	10,000-25,000	25,000-50,000	50,000-100,000	Over 100,000	Total Dealer Representation
Buick	196	420	459	542	471	177	97	182	2,544
Cadillac	17	23	73	110	202	141	79	103	748
Chevrolet	2,430	2,071	1,136	788	589	216	138	427	7,795
Chrysler	515	618	548	531	491	203	108	319	3,333
De Soto	347	374	341	356	408	200	119	320	2,465
Dodge	609	780	692	627	540	205	111	319	3,883
Ford	1,933	1,888	1,047	772	570	209	145	470	7,034
Hudson	300	292	331	353	389	182	134	361	2,342
Lincoln-Zephyr	303	439	378	395	384	163	111	343	2,516
Mercury	843	1,031	671	578	464	191	125	397	4,300
Nash	192	214	232	300	331	163	105	255	1,792
Oldsmobile	201	453	478	451	423	190	103	244	2,543
Packard	31	74	124	213	264	151	84	176	1,117
Plymouth	1,469	1,771	1,572	1,513	1,449	598	338	960	9,670
Pontiac	379	700	638	559	486	198	120	290	3,370
Studebaker	448	426	393	434	439	185	134	333	2,792
Willys	192	168	147	175	214	119	72	211	1,298
Miscellaneous	13	6	15	10	26	8	14	69	161
Summary	10,418	11,748	9,275	8,707	8,140	3,499	2,137	5,779	59,703
Per Cent of Total—1942	17.45%	19.68%	15.54%	14.58%	13.63%	5.86%	3.58%	9.68%	100.00%
Per Cent of Total—1941	20.04%	20.08%	15.09%	12.84%	13.11%	5.14%	3.99%	9.62%	100.00%

* Direct Mail Division—Chilton Company, as of January, 1942.

Automotive Dealers, Repair Shops, Wholesalers by States‡

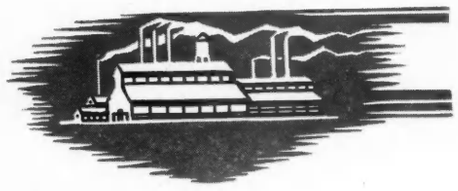
(With Number of Motor Vehicles per Outlet)

STATE	Total Registered Motor Vehicles	WHOLESALERS: Number of Wholesalers	WHOLESALERS: Motor Vehicles per Wholesaler	DEALERS: Passenger Car Dealers	DEALERS: Exclusive Truck Dealers	DEALERS: Total Truck Dealers*	DEALERS: Total Car and Truck Dealers	DEALERS: Motor Vehicles per Car and Truck Dealer	REPAIR SHOPS: Car and Truck Dealer Service Stations	REPAIR SHOPS: Independent Repair Shops	REPAIR SHOPS: Total Repair Shops	All Retail Outlets, Duplications Eliminated	Motor Vehicles per Retail Outlet
Alabama	358,059	83	4,314	405	25	377	430	832	386	304	690	819	437
Arizona	144,800	33	4,387	147	10	142	157	922	122	144	266	330	438
Arkansas	313,978	80	3,924	363	18	343	381	824	351	306	657	703	446
California	2,868,958	535	5,363	1,881	85	1,578	1,966	1,459	1,825	4,921	6,746	7,510	382
Colorado	367,746	74	4,969	446	33	376	479	767	453	543	996	1,091	337
Connecticut	544,865	104	5,239	550	30	453	580	939	565	692	1,257	1,462	372
Delaware	97,019	14	6,929	72	3	64	75	1,294	63	73	136	173	560
District of Columbia	169,527	24	7,063	84	3	59	87	1,948	78	153	231	280	652
Florida	555,434	117	4,747	476	27	408	503	1,104	493	563	1,056	1,170	474
Georgia	561,191	104	5,396	579	20	499	599	937	542	374	916	1,028	545
Idaho	171,031	34	5,030	316	19	267	335	510	330	219	549	578	295
Illinois	2,059,845	416	4,951	2,270	111	1,862	2,381	865	2,313	2,852	5,165	5,579	369
Indiana	1,066,519	210	5,078	1,166	39	941	1,205	885	1,117	1,147	2,264	2,366	450
Iowa	821,569	174	4,722	1,359	100	1,214	1,459	563	1,341	1,185	2,526	2,835	289
Kansas	617,793	135	4,576	947	30	837	977	632	935	810	1,745	1,769	349
Kentucky	492,900	105	4,694	589	29	506	618	797	582	422	1,004	1,106	445
Louisiana	443,920	75	5,918	393	16	339	409	1,085	401	369	770	816	544
Maine	211,500	48	4,406	352	12	302	364	581	353	410	763	750	282
Maryland	487,976	83	5,879	457	14	389	471	1,036	460	446	906	950	513
Massachusetts	961,639	223	4,312	1,071	28	791	1,099	875	1,059	1,154	2,213	2,493	385
Michigan	1,274,140	255	4,996	1,791	49	1,492	1,840	692	1,745	1,823	3,568	4,035	315
Minnesota	902,924	128	7,054	1,379	33	1,163	1,412	639	1,337	1,647	2,984	3,245	278
Mississippi	267,233	76	3,516	391	29	345	420	636	398	199	597	622	429
Missouri	984,626	218	4,516	1,011	30	775	1,041	946	998	1,336	2,334	2,512	391
Montana	198,732	49	4,055	365	36	357	401	495	365	563	928	658	302
Nebraska	426,568	96	4,443	662	30	600	692	616	643	720	1,363	1,491	286
Nevada	34,579	10	3,458	81	7	85	88	392	80	94	174	196	176
New Hampshire	136,032	26	5,232	219	10	188	229	594	217	250	467	488	279
New Jersey	1,153,920	191	6,041	1,043	56	787	1,099	1,049	1,051	1,751	2,802	2,983	386
New Mexico	129,871	36	3,607	171	9	173	180	721	182	140	322	338	384
New York	2,860,912	521	5,491	2,788	121	2,215	2,909	983	2,731	5,078	7,809	8,481	337
North Carolina	656,159	132	4,970	745	21	606	766	856	739	485	1,224	1,331	492
North Dakota	192,919	24	8,038	476	19	428	495	389	448	468	916	1,001	192
Ohio	1,992,000	383	5,201	2,188	94	1,695	2,282	872	2,123	2,300	4,423	4,809	414
Oklahoma	586,743	138	4,251	663	50	619	713	822	701	805	1,506	1,690	347
Oregon	429,440	88	4,880	451	23	372	474	905	430	863	1,293	1,427	300
Pennsylvania	2,281,307	442	5,161	3,041	141	2,356	3,182	717	3,104	3,724	6,828	7,349	310
Rhode Island	195,704	29	6,748	163	4	115	167	1,171	155	206	361	402	486
South Carolina	364,369	58	6,282	389	15	318	404	901	341	245	586	608	599
South Dakota	202,683	32	6,333	394	17	356	411	493	387	326	713	756	268
Tennessee	508,983	111	4,585	475	21	408	496	1,026	452	401	853	935	544
Texas	1,810,861	372	4,867	1,850	135	1,625	1,985	912	1,852	2,684	4,536	4,816	376
Utah	150,541	44	3,421	194	14	175	208	723	188	242	430	485	310
Vermont	97,486	28	3,482	195	14	177	209	466	190	282	472	507	192
Virginia	553,380	86	6,434	684	23	526	707	782	692	645	1,337	1,449	381
Washington	615,000	141	4,361	731	38	613	769	799	708	1,295	2,003	2,146	286
West Virginia	301,783	79	3,820	478	26	391	504	598	462	345	807	889	339
Wisconsin	966,813	142	6,808	1,616	62	1,410	1,678	576	1,626	1,416	3,042	3,222	300
Wyoming	91,975	25	3,679	191	10	172	201	457	192	132	324	363	253
Total	33,683,952	6,631	†5,079	38,748	1,789	32,291	40,537	†831	38,306	47,552	85,858	93,022	†362

‡—Direct Mail Division—Chilton Company. All data as of January, 1942. *—Includes Plymouth Dealers. †—U. S. Average.

The Production Record of the Industry From Its Beginning to the End of 1941

(United States and Canada)



Year	PASSENGER CARS Units*	Wholesale Value	Average Wholesale Price	TRUCKS Units†	Wholesale Value	Average Wholesale Price	CARS AND TRUCKS Units	Wholesale Value
1900 to 1912	721,816	$986,840,856	$....	24,728	$44,366,430	$....	746,544	$1,031,307,286
1912	356,000	335,000,000	....	22,000	43,000,000	....	378,000	378,000,000
1913	461,500	399,902,000	....	23,500	44,000,000	....	485,000	443,902,000
1914	543,679	413,859,000	....	25,375	45,098,464	....	569,054	458,957,843
1915	895,930	575,978,000	....	74,000	125,800,000	....	969,930	701,778,000
1916	1,525,578	921,378,000	....	92,130	161,000,000	....	1,617,708	1,082,378,000
1917	1,745,792	1,053,505,781	....	128,157	220,982,668	....	1,873,949	1,274,488,499
1918	943,436	801,937,925	....	227,250	434,168,992	....	1,170,686	1,236,106,917
1919	1,657,652	1,461,785,925	....	275,943	423,326,621	....	1,933,595	1,885,112,546
1920	1,905,560	1,809,170,963	....	321,789	423,249,410	....	2,227,349	2,232,420,373
1921	1,518,061	1,091,752,452	719	164,304	189,914,098	1034	1,682,365	1,261,666,550
1922	2,369,089	1,561,740,645	659	277,140	231,282,063	834	2,646,229	1,793,022,708
1923	3,753,945	2,274,554,488	606	426,505	317,478,940	744	4,180,450	2,592,033,428
1924	3,303,646	2,040,706,519	624	434,140	326,706,496	753	3,737,786	2,367,413,015
1925	3,870,744	2,544,526,799	657	557,056	470,634,763	845	4,427,800	3,015,163,562
1926	3,948,843	2,746,064,722	695	556,818	468,752,769	842	4,505,661	3,214,817,491
1927	3,083,360	2,265,633,102	735	497,020	435,072,641	875	3,580,380	2,700,705,743
1928	4,012,158	2,703,753,500	674	588,983	459,045,380	779	4,601,141	3,162,798,880
1929	4,794,898	2,981,141,842	622	826,817	595,504,039	720	5,621,715	3,576,645,881
1930	2,910,187	1,720,652,104	591	599,991	405,949,915	677	3,510,178	2,126,602,019
1931	2,038,183	1,153,907,947	566	434,176	272,748,305	628	2,472,359	1,426,656,252
1932	1,186,209	650,781,297	549	245,285	142,264,003	580	1,431,494	793,045,300
1933	1,627,367	795,304,780	488	358,542	192,131,509	536	1,985,909	987,436,289
1934	2,270,566	1,204,376,351	530	599,397	332,913,985	555	2,869,963	1,537,290,336
1935	3,387,806	1,788,635,180	529	732,005	399,211,522	545	4,119,811	2,187,846,702
1936‡	3,797,897	2,092,460,475	551	818,377	481,961,420	589	4,616,274	2,574,421,895
1937‡	4,068,935	2,397,717,534	589	947,502	573,310,107	605	5,016,437	2,971,027,641
1938‡	2,124,746	1,351,426,737	636	530,425	365,723,677	689	2,655,171	1,690,250,414
1939‡	2,975,165	1,887,536,118	634	757,553	530,494,488	700	3,732,718	2,418,030,606
1940‡	3,802,454	2,506,035,906††	659	889,884	684,923,119††	770	4,692,338	3,190,959,025††
1941‡	3,838,345	2,677,507,000††	698	1,270,616	1,184,968,000††	933	5,108,961	3,862,475,000††
Total	75,439,547	$49,195,675,948	....	13,727,408	$11,025,983,824	....	87,293,006	$60,221,659,772

* Includes Taxicabs. † Includes Buses. ‡ Includes federal excise taxes, also standard equipment in 1937, 1938, 1939 and 1940.
†† Partly estimated.

The marked increase in average wholesale price of trucks can be largely attributed to the purchase of military vehicles, the average price of which is nearly double that of vehicles for civilian use.

12 Years' Production Record by Months

(United States and Canada)

Passenger Cars

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	242,672	142,869	101,915	112,754	117,700	235,806	308,589	324,191	168,890	292,869	375,476	423,223	January
February	293,036	187,948	98,604	93,153	193,875	287,142	234,872	310,961	151,133	253,914	350,535	405,160	February
March	348,087	241,727	106,003	103,396	291,546	377,374	357,068	423,006	186,341	312,392	364,947	422,289	March
April	393,804	300,960	126,597	156,712	303,806	407,721	436,576	452,907	190,111	286,200	375,626	387,070	April
May	382,619	282,096	165,025	188,675	290,268	322,485	401,139	443,412	168,599	249,455	338,353	427,538	May
June	298,130	215,979	166,646	213,602	272,090	306,300	388,183	429,333	147,545	257,289	294,779	427,521	June
July	230,761	187,324	101,478	196,587	231,501	283,715	379,823	372,913	112,114	155,850	172,166	347,597	July
August	190,864	158,851	79,073	196,333	190,825	186,133	212,140	317,270	61,687	62,475	48,333	81,689	August
September	182,049	111,336	66,489	161,734	129,251	59,499	92,324	120,597	69,449	165,119	227,880	170,338	September
October	117,014	59,176	37,468	107,593	86,128	220,113	194,690	306,040	192,906	259,610	428,270	301,203	October
November	104,668	49,996	49,201	43,868	50,072	347,830	351,171	309,121	335,767	295,134	417,905	263,104	November
December	126,483	99,921	87,710	52,954	113,504	353,688	441,322	259,184	340,204	384,658	408,184	181,613	December
Total	2,910,187	2,038,183	1,186,209	1,627,361	2,270,566	3,387,806	3,797,897	4,068,935	2,124,746	2,975,165	3,802,454	3,838,345	Total

Motor Trucks

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	40,938	35,475	21,160	19,429	44,870	64,529	68,655	74,995	58,062	64,093	74,016	100,835	January
February	52,925	41,863	24,291	15,592	44,952	63,204	65,938	72,939	51,464	63,606	71,690	104,172	February
March	69,031	47,671	21,274	18,508	61,068	70,520	81,875	96,016	52,106	77,107	75,285	111,587	March
April	74,477	53,138	28,539	27,975	67,532	69,338	91,049	100,324	47,818	68,066	76,807	102,784	April
May	62,080	47,805	27,491	35,132	60,348	59,324	79,379	96,965	41,575	63,793	74,139	117,817	May
June	51,466	41,496	23,572	43,448	48,292	65,785	81,185	91,820	41,857	66,964	67,787	118,757	June
July	44,960	35,386	15,137	39,310	44,546	61,582	71,383	83,996	38,336	62,750	74,005	121,298	July
August	43,296	32,890	15,319	42,601	53,890	58,942	63,794	87,802	35,259	40,868	41,533	83,103	August
September	46,557	31,876	20,003	35,874	46,335	33,229	47,496	55,033	20,174	27,560	56,703	78,413	September
October	41,928	22,406	14,157	30,772	49,643	60,203	35,359	31,939	22,380	65,079	86,104	100,157	October
November	37,493	20,118	12,560	19,106	35,107	60,720	54,628	67,508	54,638	73,407	93,068	110,788	November
December	34,840	24,052	21,782	30,801	42,814	64,629	77,636	88,165	66,756	84,260	98,747	120,905	December
Total	599,991	434,176	245,285	358,548	599,397	732,005	818,377	947,502	530,425	757,553	889,884	1,270,616	Total

Passenger Cars and Trucks

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	283,610	178,344	123,075	132,183	162,570	300,335	377,244	399,186	226,952	356,962	449,492	524,058	January
February	345,961	229,811	122,895	108,745	238,827	350,346	300,810	383,900	202,597	317,520	422,225	509,332	February
March	417,118	289,398	127,277	121,904	352,614	447,894	438,943	519,022	238,447	389,499	440,232	533,876	March
April	468,281	354,098	155,136	184,687	371,338	477,059	527,625	553,231	237,929	354,266	452,433	489,854	April
May	444,699	329,901	192,516	223,807	350,616	381,809	480,518	540,377	210,174	313,248	412,492	545,355	May
June	349,596	257,475	190,218	257,050	320,382	372,085	469,368	521,153	189,402	324,253	362,566	546,278	June
July	275,721	222,710	116,615	235,897	276,047	345,297	451,206	456,909	150,450	218,600	246,171	468,895	July
August	234,160	191,741	94,392	238,934	244,715	245,075	275,934	405,072	96,946	103,343	89,866	164,792	August
September	228,606	143,212	86,492	197,608	175,586	92,728	139,820	175,630	89,623	192,679	284,583	248,751	September
October	158,942	81,582	51,625	138,365	135,771	280,316	230,049	337,979	215,286	324,689	514,374	401,360	October
November	142,161	70,114	81,761	62,974	85,179	408,550	405,799	376,629	390,405	368,541	510,973	373,892	November
December	161,323	123,973	109,492	83,755	158,318	418,317	518,958	347,349	406,960	469,118	506,931	302,518	December
Total	3,510,178	2,472,359	1,431,494	1,985,909	2,869,963	4,119,811	4,616,274	5,016,437	2,655,171	3,732,718	4,692,338	5,108,961	Total

Figures from U. S. Census Bureau (includes overseas assemblies of motor vehicles of American make) and Dominion Bureau of Statistics.

PRODUCTION

The production record of the American motor vehicle manufacturers in Canada is presented in order to show its relative importance with that of total production of American manufacturers in both the United States and Canada, data for which are found on the opposite page.

Canadian Motor Vehicle Production*

Units and Their Wholesale Values by Years

Year	PASSENGER CARS Units*	PASSENGER CARS Value	PASSENGER CARS Average Price	TRUCKS Units†	TRUCKS Value	TRUCKS Average Price	CARS AND TRUCKS Units	CARS AND TRUCKS Value
1921	61,098	$53,561,415	$877	5,148	$3,843,288	$746	66,246	$57,404,703
1922	92,838	67,226,654	724	8,169	5,232,405	640	101,007	72,459,059
1923	127,976	78,282,372	612	19,226	8,941,011	465	147,202	87,223,383
1924	114,537	70,609,960	616	18,043	8,125,916	450	132,580	78,735,876
1925	135,573	86,158,773	635	26,397	12,234,486	463	161,970	98,393,259
1926	166,887	106,000,203	635	37,840	16,629,334	439	204,727	122,629,537
1927	146,421	100,962,211	689	32,633	14,942,017	458	179,054	115,904,228
1928	197,848	127,263,877	643	44,206	21,913,122	496	242,054	149,176,999
1929	203,307	134,023,280	659	59,318	29,474,395	497	262,625	163,497,675
1930	121,337	75,253,581	620	32,035	16,513,225	515	153,372	91,766,806
1931	65,072	42,634,173	655	17,487	10,330,763	591	82,559	52,964,936
1932	50,694	32,490,129	641	10,095	6,070,667	601	60,789	38,560,796
1933	53,849	32,568,268	605	12,003	6,062,195	505	65,852	38,630,463
1934	92,647	57,260,156	618	24,205	12,770,318	527	116,852	70,030,474
1935	135,562	79,209,276	584	37,315	19,803,771	531	172,877	99,013,047
1936	128,369	76,814,258	598	33,790	19,140,946	566	162,159	95,955,204
1937	153,046	93,368,282	610	54,417	30,389,011	558	207,463	123,757,293
1938	123,761	81,661,687	660	42,325	26,497,038	626	166,086	108,158,725
1939	108,369	71,101,204	656	47,057	28,072,712	596	155,426	99,173,916
1940	109,911	83,544,445	760	113,102	91,191,516	806	223,013	174,735,961
1941	94,045	†71,500,000	†760	176,386	†142,200,000	†806	270,431	†213,700,000
Total	2,483,147	$1,621,494,204	....	851,197	$530,378,136	....	3,334,344	$2,151,872,340

* From Annual Report of Dominion Bureau of Statistics. It will be noted that in several cases the annual unit total differs from the totals in the monthly reports. This is due in most cases to a redistribution of cars and trucks.
† Estimated.

Canadian Motor Vehicle Production*

Monthly production of American Manufacturers in Canada

Passenger Cars

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	8,856	4,552	3,112	2,921	4,946	8,252	10,897	14,697	13,385	11,404	12,579	11,990	January
February	13,021	7,529	4,494	3,025	7,101	13,566	10,661	14,173	11,753	10,914	12,779	10,647	February
March	17,165	10,483	6,604	5,927	12,272	17,964	14,198	19,127	12,276	12,689	12,025	12,093	March
April	20,872	10,043	5,660	6,957	15,451	20,563	20,145	12,927	14,033	12,791	13,487	12,091	April
May	21,251	10,621	7,269	8,024	16,504	16,938	16,218	17,980	13,641	11,585	12,677	9,840	May
June	12,194	5,583	6,308	6,005	10,810	12,118	12,846	17,919	11,014	10,585	8,739	8,538	June
July	8,556	3,151	6,773	5,322	8,407	9,371	7,901	12,513	5,273	5,112	3,397	3,849	July
August	6,946	3,426	3,166	4,919	7,325	5,003	2,789	5,814	3,063	1,068	1,510	3,160	August
September	5,623	2,108	1,741	4,358	4,211	3,402	2,223	1,926	4,290	3,494	3,410	2,548	September
October	3,206	761	2,361	2,723	2,125	6,803	4,448	7,378	5,412	7,791	7,056	5,635	October
November	3,527	812	1,669	1,503	1,052	10,916	10,086	13,793	15,423	9,882	10,814	7,003	November
December	4,225	2,024	1,561	2,171	2,443	10,666	15,957	14,799	14,198	11,054	11,653	6,651	December
Total	125,442	65,093	50,718	53,855	92,647	135,562	128,369	153,046	123,761	108,369	110,126	94,045	Total

Trucks

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	1,532	1,944	619	437	1,958	2,355	2,405	4,886	4,239	3,390	4,634	11,205	January
February	2,527	2,342	983	273	1,470	4,549	2,607	5,534	4,313	3,386	5,414	13,063	February
March	3,565	2,510	1,714	705	1,908	4,017	3,823	5,774	4,526	4,864	4,587	13,951	March
April	3,385	3,116	1,150	1,298	2,912	3,560	4,806	4,154	4,786	4,100	6,200	15,493	April
May	3,421	2,117	952	1,372	3,657	3,764	3,788	5,478	4,474	4,121	8,600	16,745	May
June	2,896	1,252	804	1,318	3,095	3,627	3,554	5,922	3,718	3,930	9,191	17,215	June
July	1,632	1,069	699	1,218	2,707	3,817	2,574	5,428	3,734	4,129	11,071	20,805	July
August	2,846	1,188	901	1,160	2,579	2,672	1,871	4,928	3,389	2,407	12,483	14,032	August
September	2,334	538	601	1,450	1,368	1,786	2,432	2,491	1,799	428	12,065	11,948	September
October	1,335	679	562	959	1,655	1,470	913	725	362	3,506	14,095	13,725	October
November	1,880	435	535	788	645	2,575	726	2,781	2,569	6,874	12,807	14,542	November
December	1,397	408	578	1,019	251	3,123	4,291	6,316	4,416	5,922	11,711	13,662	December
Total	28,750	17,528	10,098	11,997	24,205	37,315	33,790	54,417	42,325	47,057	112,858	176,386	Total

Total Motor Vehicles

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	10,388	6,496	3,731	3,358	6,904	10,607	13,302	19,583	17,624	14,794	17,213	23,195	January
February	15,548	9,871	5,477	3,298	8,571	18,115	13,268	19,707	16,066	14,300	18,193	23,710	February
March	20,730	12,993	8,318	6,632	14,180	21,981	18,021	24,901	16,802	17,553	16,612	26,044	March
April	24,257	17,159	6,810	8,255	18,363	24,123	24,951	17,081	18,819	16,891	19,687	27,584	April
May	24,672	12,738	8,221	9,396	20,161	20,702	20,006	23,458	18,115	15,706	21,277	26,585	May
June	15,090	6,835	7,112	7,323	13,905	15,745	16,400	23,841	14,732	14,515	17,930	25,753	June
July	10,188	4,220	7,472	6,540	11,114	13,188	10,475	17,941	9,007	9,241	14,468	24,654	July
August	9,792	4,544	4,067	6,079	9,904	7,675	4,660	10,742	6,452	3,475	13,993	17,192	August
September	7,957	2,646	2,342	5,808	5,579	5,188	4,655	4,417	6,089	3,922	15,475	14,496	September
October	4,541	1,440	2,923	3,682	3,780	8,273	5,361	8,103	5,774	11,297	21,151	19,360	October
November	5,407	1,247	2,204	2,291	1,697	13,491	10,812	16,574	17,992	16,756	23,621	21,545	November
December	5,622	2,432	2,139	3,190	2,694	13,789	20,248	21,115	18,614	16,976	23,364	20,313	December
Total	154,192	82,621	60,816	65,852	116,852	172,877	162,159	207,483	166,086	155,426	222,984	270,431	Total

* From monthly reports of the Dominion Bureau of Statistics, Ottawa, Canada.

How Capacity of Trucks Produced Has Varied from Year to Year

(United States and Canada)

Truck Tonnage	1935 Number	1935 %	1936 Number	1936 %	1937 Number	1937 %	1938 Number	1938 %	1939 Number	1939 %	1940 Number	1940 %	1941† Number	1941† %
¾ ton or less	249,957	34.1	316,208	38.6	359,157	41.7	194,827	36.7	292,768	38.6	338,670	38.06	440,737	34.68
1 ton and less than 1½	2,259	.3	9,686	1.1	21,580	2.3	30,951	5.8	29,725	3.9	43,723	4.91	68,281	5.38
1½ ton and less than 2	420,597	57.5	423,503	52.0	441,156	46.6	246,200	46.4	344,199	45.5	354,235	39.81	463,137	36.45
2 ton and less than 2½	28,950	4.0	30,637	3.7	30,431	3.2	18,375	3.5	26,701	3.5	52,080	5.85	124,741	9.82
2½ ton and less than 3½	10,465	1.4	12,309	1.5	18,971	2.0	9,954	1.9	18,801	1.0	28,224	3.17	63,534	5.00
3½ ton and less than 5	3,612	.5	4,621	.5	6,170	.6	4,539	.9	7,619	2.5	8,788	.99	15,058	1.18
5 ton and over	3,824	.5	5,567	.7	9,248	1.0	5,820	1.1	7,365	1.0	8,524	.96	14,458	1.14
Special types	*12,341	*1.7	*15,846	*1.9	*24,789	*2.6	*19,759	*3.7	*30,375	*4.0	*55,640	*6.25	*80,670	6.35
Total	732,005	100.0	818,377	100.0	947,502	100.0	530,425	100.0	757,553	100.0	889,884	100.00	1,270,616	100.00

* Includes Station Wagons.
† Includes military vehicles delivered to U. S. armed forces and non-Axis governments. Partly estimated.

Passenger Car Production by Wholesale Price Classes

(United States and Canada)

Number of Units

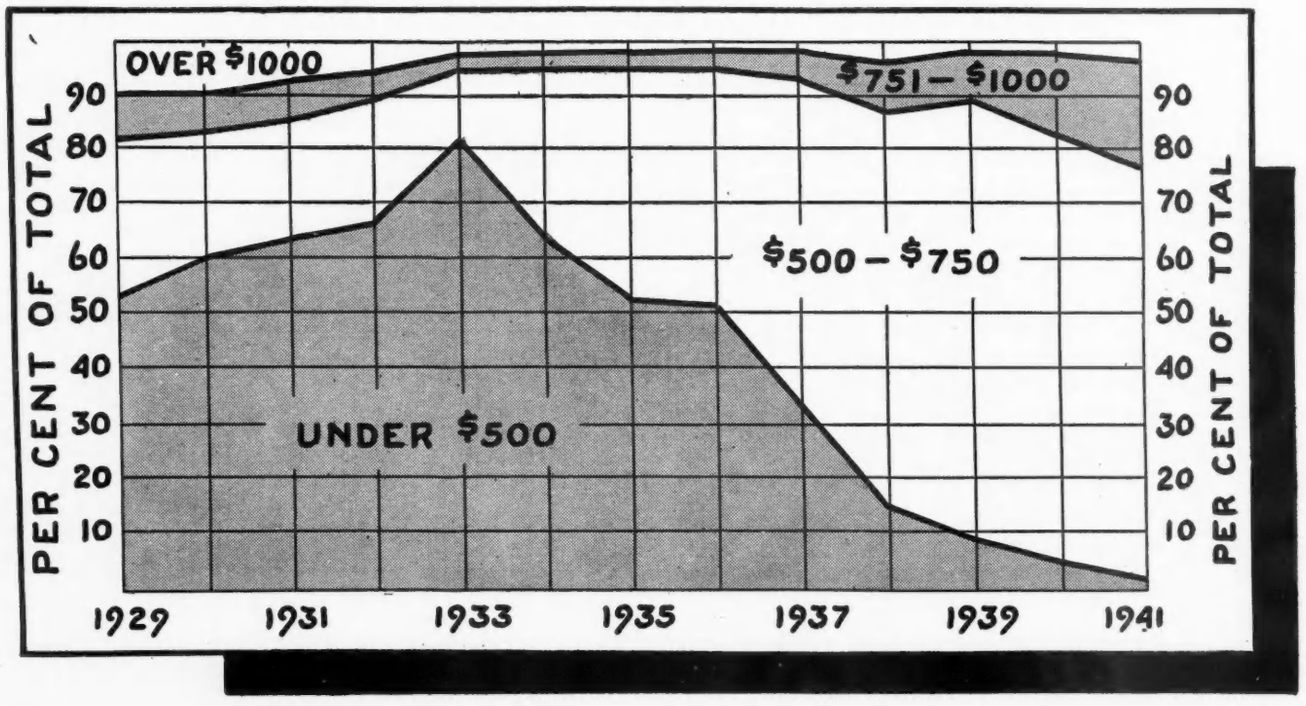
Price Classes	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941*
$500 and less	1,328,294	794,164	1,316,341	1,443,357	1,787,171	1,919,618	1,368,018	319,858	285,217	132,394	55,268
$501-$750	413,929	260,831	237,099	715,989	1,444,529	1,677,558	2,392,415	1,521,404	2,380,486	3,065,214	2,874,115
$751-$1000	162,954	74,610	31,610	66,223	110,813	143,269	260,280	224,839	253,931	528,868	757,880
$1,001-$1,500	80,687	36,670	20,125	27,576	28,736	39,997	31,226	42,160	49,033	65,987	137,124
$1,501-$2,000	33,846	8,699	10,409	8,391	8,716	11,545	11,633	3,661	4,304	7,564	10,180
$2,001-$3,000	12,714	8,679	8,725	6,879	5,413	4,326	4,061	2,161	1,870	2,306	3,686
$3,001 and over	5,759	2,532	2,052	2,151	2,428	1,584	1,302	663	344	121	92
Total	2,038,183	1,186,185	1,627,361	2,270,566	3,387,806	3,797,897	4,068,935	2,124,746	2,975,185	3,802,454	3,838,345

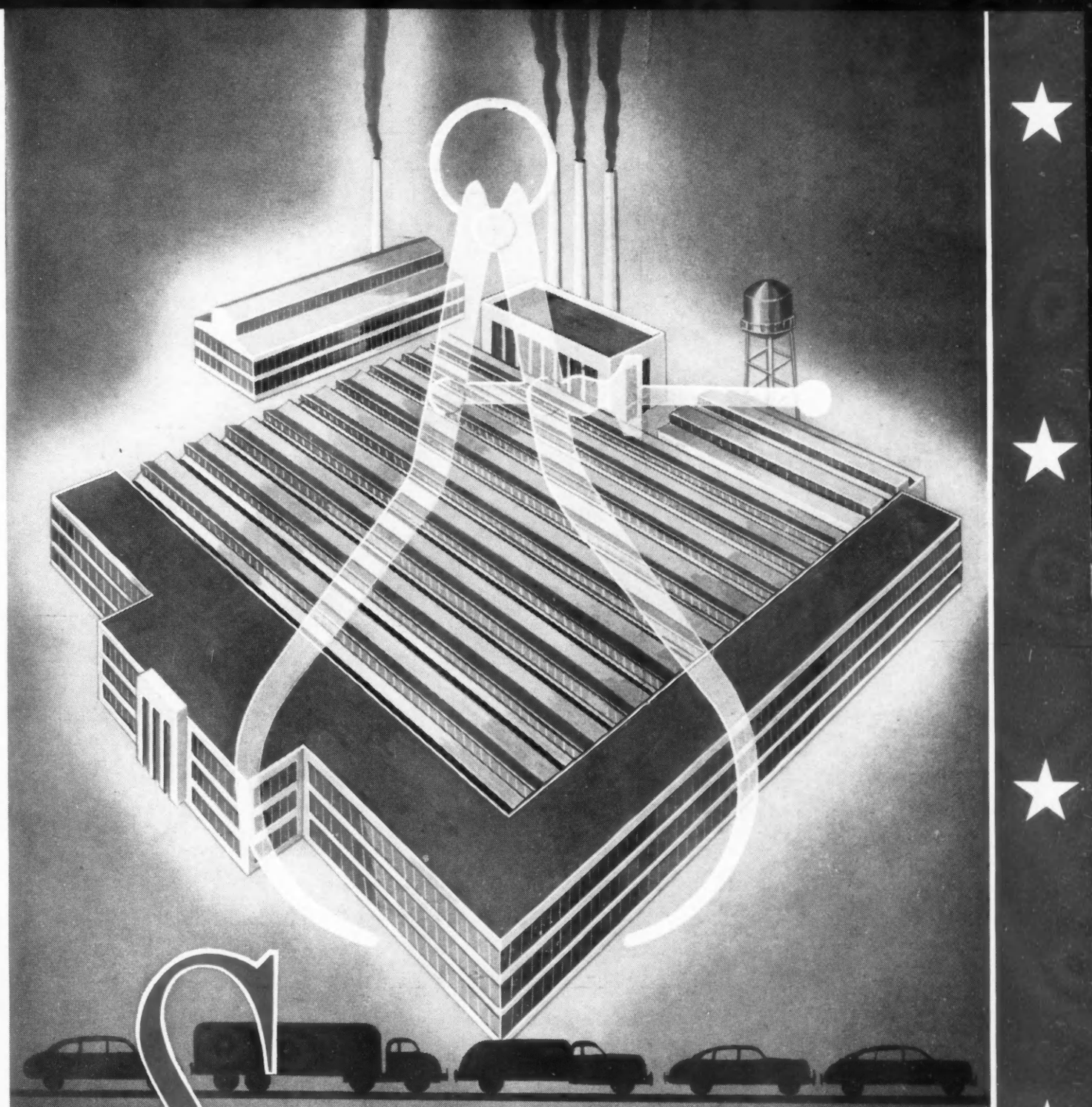
Per Cent of Total

Price Classes	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941*
$500 and less	65.17	66.95	80.89	63.57	52.75	50.55	33.62	15.50	9.60	3.48	1.44
$501-$750	20.31	22.00	14.57	31.53	42.64	44.17	58.80	71.60	80.00	80.61	74.88
$751-$1,000	8.00	6.29	2.00	2.92	3.27	3.77	6.40	10.60	8.54	13.91	19.74
$1,001-$1,500	3.96	3.09	1.24	1.21	.85	1.05	.77	2.00	1.65	1.74	3.57
$1,501-$2,000	1.66	.73	.64	.37	.26	.30	.28	.17	.14	.20	.27
$2,001-$3,000	.62	.73	.54	.31	.16	.11	.10	.10	.06	.06	.10
$3,001 and over	.28	.21	.12	.09	.07	.05	.03	.03	.01	....	....
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

* Partly estimated.

Graphic Story of Car Production by Wholesale Price Classes





SPECIFICATIONS SECTION

TION ENGINEERING • • LUBRICATION ENGINEERING • • LUBRICATION ENGINEERING • • LUBRICATION ENGINEE

SAVES TIME, TOOLS, AND TEMPERS

● WHEN demands on men and machines increase, time, tool life, and tempers get shorter—as an Illinois manufacturer discovered. He was having trouble due to the kind of soluble oil used on most machining operations in his plant.

This oil was difficult to emulsify—which cost time. Tool life was short because the emulsion separated. Everyone in the shop objected to the odor that developed after the oil was in use a short time.

He put the problem up to a Standard Oil Engineer—who recommended Superla Soluble Oil. This solved all three problems. Superla mixes readily, even with the hard water available. It does not separate, even after long use. It eliminates all odor complaint because it does not turn rancid.

It is not too late to put a Standard Oil Engineer to work on *your* cutting oil needs. He's almost sure to have some time and money-saving suggestions for you. Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago, Illinois.

Copr. 1942, Standard Oil Company (Indiana)

SUPERLA SOLUBLE OIL

1. Uniform Composition. 2. Emulsifies Readily.
3. Stable Emulsions. 4. No Rancidity.
5. Non-injurious to Operators and Machines.
6. Protects Against Rust.

STANDARD OIL COMPANY (INDIANA

100%
NATIONAL DEFENSE

Shoulder to Shoulder with—

HERCULES ENGINES • GMC • IHC • MACK
WAUKESHA • CONTINENTAL • CUMMINS • BUDA
STUDEBAKER • DIAMOND-T • FEDERAL • FWD
INDIANA • REO • HALL-SCOTT • GUIBERSON
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ORIGINAL EQUIPMENT
IN AMERICA'S FINEST MOTORS

ZOLLNER

PISTON EQUIPMENT

Universally used for internal combustion engines - both gasoline and Diesel

ZOLLNER MACHINE WORKS • FT. WAYNE, IND.

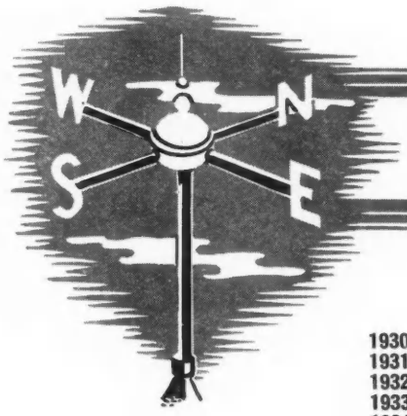
High Production Tools That keep 'em Flying

AS the pace grows faster and faster...we are proud of the part we play in the rapid development of the aircraft industry.

Ability growing out of many years experience in the manufacture of high production tools enables us to meet your present day intricate tooling demands on BORING · RECESSING · FACING · REAMING · UNDERCUTTING · CHAMFERING · MILLING · ETC.

SCULLY-JONES AND COMPANY

1901 SO. ROCKWELL ST., CHICAGO, ILLINOIS



ENGINE TRENDS

IN 12 YEARS
Increase in Hp.
78%
Increase in Car Weight
14%
(Based on New Registrations)

	No. of Units Sold*	Gross Shipping Wgt. of Cars Sold (lb)†	Gross Max. Hp. of Cars Sold‡	Average Weight (lb.)	Average Hp.
1930	2,625,979	7,320,000,000	142,800,000	2,780	54
1931	1,908,141	5,380,000,000	109,200,000	2,820	57
1932	1,096,399	3,200,000,000	75,400,000	2,920	69
1933	1,493,794	4,220,000,000	106,000,000	2,820	71
1934	1,888,557	5,560,000,000	156,000,000	2,940	83
1935	2,743,908	8,120,000,000	234,000,000	2,960	85
1936	3,404,497	10,190,000,000	291,000,000	3,000	86
1937	3,483,752	10,470,000,000	303,900,000	3,005	87
1938	1,891,021	5,743,000,000	169,200,000	3,035	89
1939	2,653,377	7,950,000,000	239,200,000	2,996	90
1940	3,415,905	10,511,000,000	312,100,000	3,077	91
1941	3,731,166	11,793,000,000	356,800,000	3,161	96

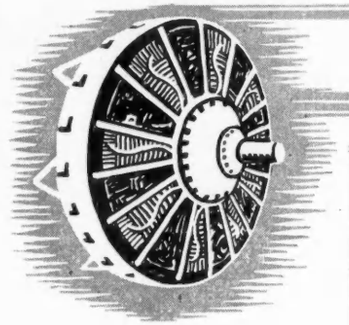
† Shipping weight of 5-passenger, 4-door sedan, taken as typical and used in conjunction with new registrations of each model. ‡ Maximum horsepower taken from previous Statistical Issues and used in conjunction with new registrations of each model. * R. L. Polk & Co., registrations of new passenger cars.

Sixteen Years' Progress in Engine Design

(Average for Passenger Car Engines—Based on Number of Chassis Models Offered)

	Average Hp. per Cu. In. of Displacement	Average Compression Ratio	Average B.M.E.P. At Maximum Hp. (Lb. per Sq. In.)	Bore, Stroke, Displacement		
				Bore (Inches)	Stroke (Inches)	Piston Disp. (Cu. In.)
1927	.256	4.55	74.5	3.26	4.68	254.9
1928	.276	4.86	76.2	3.27	4.58	257.7
1929	.306	4.99	80.6	3.27	4.57	261.3
1930	.331	5.15	82.7	3.26	4.51	264.6
1931	.344	5.23	84.3	3.21	4.45	273.0
1932	.353	3.29	86.2	3.26	4.41	283.9
1933	.376	5.57	88.5	3.23	4.40	284.1
1934	.388	5.72	90.1	3.24	4.40	289.2
1935	.398	5.98	90.2	3.23	4.39	271.4
1936	.411	6.14	92.3	3.39	4.32	267.9
1937	.417	6.25	93.1	3.25	4.31	277.6
1938	.412	6.32	91.2	3.25	4.27	271.1
1939	.415	6.32	92.7	3.24	4.23	255.3
1940	.426	6.41	93.9	3.25	4.17	254.0
1941	.431	6.63	96.7	3.26	4.15	252.1
1942	.446	6.60	98.5	3.26	4.18	251.8

	Average Piston Speeds (Feet per Min.)	Average Displacement per Cylinder (Cu. In.)	Average Number of Cylinders	Average R.P.M.	Average Brake Horsepower
1927	2150	39.5	6.45	2740	65.8
1928	2210	39.1	6.59	2860	70.9
1929	2310	38.9	6.71	3063	81.6
1930	2380	37.6	7.04	3170	87.6
1931	2395	36.8	7.49	3230	95.0
1932	2390	36.7	7.78	3250	101.0
1933	2463	36.0	7.88	3360	106.5
1934	2508	36.2	7.97	3420	112.5
1935	2535	36.1	7.51	3480	109.6
1936	2498	35.6	7.50	3487	110.1
1937	2554	35.8	7.74	3556	115.9
1938	2545	35.7	7.60	3576	111.7
1939	2498	35.1	7.28	3543	105.9
1940	2490	35.0	7.25	3580	107.9
1941	2492	35.2	7.15	3603	110.9
1942	2534	34.9	7.20	3638	112.5



AMERICAN AIRCRAFT ENGINES

ENGINE MAKE AND MODEL	A. T. C. Number	CYLINDER DATA: Arrangement	Cooling Medium	Number of Cylinders	Bore and Stroke (In.)	Total Piston Displacement (Cu. In.)	Compression Ratio	B.M.E.P. at Cruising Hp. (Lb. per Sq. In.)	Blower Ratio	Cylinder Material	No. of Valves per Cylinder: Intake	Exhaust	Valve Arrangement	RATINGS: Maximum (Except Take-off): Horsepower	R. P. M.	At Sea Level or Altitude (Ft.)	Take-off: Horsepower	R. P. M.	Crulsing: Horsepower	R. P. M.	Octane Rating of Fuel Required	Propeller Drive	Weight (Lb.): Engine—Dry Without Hub or Starter	Per Cruising Hp.	Carburetor—Number and Make Fitted	Ignition System: Make	Current Source	Number	Starting: Make	Method	Installation Dimensions Overall—Ins.: Length	Height or O. D.	Width	Height Above Engine Bed (In.)	Diam. Mount., Ring or Distance Between Bearers
Allison C15		V-60	Liq	12-5½x6	1710.0	6.65	142	8.77	6	2	2	OH	930	2600	12800	1040	2800	698	2280		G	1340	1.92	1-Str	Scin	Mag	1	Ecl	EM	98 11/32	41 3/16	29 3/32	23 5/16	18 3/16
Allison F-2R		V-60	Liq	12-5½x6	1710.0	6.65	152	6.44	6	2	2	OH	1000	2600	SL	1150	2800	750	2280	87	G	1310	1.75	1-Str	Scin	Mag	1	Ecl	EM	85 5/8	36 3/4	29 3/32	23 3/32	18 3/4
Allison F-2L		V-60	Liq	12-5½x6	1710.0	6.65	152	6.44	6	2	2	OH	1000	2600	SL	1150	2800	750	2280	87	G	1310	1.75	1-Str	Scin	Mag	1	Ecl	EM	85 5/8	36 3/4	29 3/32	23 3/32	18 3/4
Allison F-3R		V-60	Liq	12-5½x6	1710.0	6.65	154	8.80	6	2	2	OH	1000	2600	10800	1150	2800	760	2280		G	1335	1.76	1-Str	Scin	Mag	1	Ecl	EM	85 5/8	36 1/32	29 3/32	23 3/32	18 3/4
Allison E-4		V-60	Liq	12-5½x6	1710.0	6.65	154	8.80	6	2	2	OH	1000	2600	10800	1150	2800	760	2280		G	1425	1.76	1-Str	Scin	Mag	1	Ecl	EM	194	36 1/32	29 3/32	23 3/32	19 3/8
Continental Series 7-A-50	190	Hor	Air	4-3 7/16x3 5/8	171.0	5.40	108	No	5	1	1	I	50	1900	SL	50	1900	42	1800	65	D	161	3.83	1-Str°	Scin	Mag	1			30 1/32	22 1/16	31 1/16		
Continental Series 8-A-50	190	Hor	Air	4-3 7/16x3 5/8	171.0	5.40	108	No	5	1	1	I	50	1900	SL	50	1900	42	1800	65	D	170	4.05	1-Str°	Scin	Mag	2			30 1/32	22 1/16	31 1/16		
Continental Series 9-A-50	190	Hor	Air	4-3 7/16x3 5/8	171.0	5.40	108	No	5	1	1	I	50	1900	SL	50	1900	42	1800	65	D	176	4.19	1-Str°	Scin	Mag	2	Ecl*	EM	32 1/32	22 1/16	31 1/16		
Continental Series 7-A-65	205	Hor	Air	4-3 7/16x3 5/8	171.0	6.30	114	No	5	1	1	I	65	2300	SL	65	2300	53	2150	73	D	161	3.04	1-Str°	Scin	Mag	1			30 1/32	22 1/16	31 1/16		
Continental Series 8-A-65	205	Hor	Air	4-3 7/16x3 5/8	171.0	6.30	114	No	5	1	1	I	65	2300	SL	65	2300	53	2150	73	D	170	3.21	1-Str°	Scin	Mag	2			30 1/32	22 1/16	31 1/16		
Continental Series 9-A-65	205	Hor	Air	4-3 7/16x3 5/8	171.0	6.30	114	No	5	1	1	I	65	2300	SL	65	2300	53	2150	73	D	176	3.32	1-Str°	Scin	Mag	2	Ecl*	EM	32 1/32	22 1/16	31 1/16		
Continental Series 8-A-75	213	Hor	Air	4-3 7/16x3 5/8	171.0	6.30	119	No	5	1	1	I	75	2600	SL	75	2600	63	2450	73	D	170	2.70	1-Str°	Scin	Mag	2			30 1/32	22 1/16	31 1/16		
Continental Series 9-A-75	213	Hor	Air	4-3 7/16x3 5/8	171.0	6.30	119	No	5	1	1	I	75	2600	SL	75	2600	63	2450	73	D	176	2.79	1-Str°	Scin	Mag	2	Ecl*	EM	32 1/32	22 1/16	31 1/16		
Continental Series 8-A-80	217	Hor	Air	4-3 7/16x3 5/8	171.0	7.50	117	No	5	1	1	I	80	2700	SL	80	2700	63	2500	80	D	170	2.70	1-Str°	Scin	Mag	2			30 1/32	22 1/16	31 1/16		
Continental Series 9-A-80	217	Hor	Air	4-3 7/16x3 5/8	171.0	7.50	117	No	5	1	1	I	80	2700	SL	80	2700	63	2500	80	D	176	2.79	1-Str°	Scin	Mag	2	Ecl*	EM	32 1/32	22 1/16	31 1/16		
Continental Series 6A-W670	162	Rad	Air	7-5 1/16x4 5/8	668.0	5.40	106	No	5	1	1	I	220	2075	SL	220	2075	169	1900	65	D	480	2.84	1-Str	Scin	Mag (a)	2	Ecl*	EM	34 7/16	42 1/4			20
Continental Series K-W670	162	Rad	Air	7-5 1/16x4 5/8	668.0	5.40	109	No	5	1	1	I	225	2175	SL	225	2175	189	2050	65	D	480	2.54	1-Str	Scin	Mag (a)	2	Ecl*	EM	34 7/16	42 1/4			20
Continental Series M-W670	162	Rad	Air	7-5 1/16x4 5/8	668.0	6.10	116	No	5	1	1	I	240	2200	SL	240	2200	202	2075	80	D	490	2.43	1-Str	Scin	Mag (a)	2	Ecl*	EM	34 7/16	42 1/4			20
Franklin (1) 4AC176-BA2	221	Hor	Air	4-4x3½	176.0	6.00	104	No	4	1	1	I	65	2300	SL	65	2300	48 3/4	2100	73	D	182	3.74	1-MS	Eis	Mag	2		PS	28 5/8	19 11/32	30 1/4	8 5/8	
Franklin 4AC176-D2	221	Hor	Air	4-4x3½	176.0	6.30	110	No	4	1	1	I	80	2650	SL	80	2650	60	2450	73	D	182	3.04	1-MS	Eis	Mag	2		PS	28 5/8	19 11/32	30 1/4	8 5/8	
Franklin 4AC176-D3	221	Hor	Air	4-4x3½	176.0	6.30	110	No	4	1	1	I	80	2650	SL	80	2650	60	2450	73	D	201	3.36	1-MS	Eis	Mag	2	Au	EM	30 1/4	24 1/8	30 1/4	13 1/8	
Franklin 4AC176-F2	221	Hor	Air	4-4x3½	176.0	7.00	117	No	4	1	1	I	80	2500	SL	80	2500	60	2300	80	D	183	3.05	1-MS	Eis	Mag	2		PS	28 5/8	19 11/32	30 1/4	8 5/8	
Franklin 4AC176-F3	221	Hor	Air	4-4x3½	176.0	7.00	117	No	4	1	1	I	80	2500	SL	80	2500	60	2300	80	D	202	3.37	1-MS	Eis	Mag	2	Au	EM	30 1/4	24 1/8	30 1/4	13 1/8	
Franklin 4AC199-D2	226	Hor	Air	4-4 1/4x3 1/2	199.0	6.30	110	No	4	1	1	I	85	2500	SL	85	2500	63 3/4	2300	73	D	190	2.98	1-MS	Eis	Mag	2		PS	28 5/8	19 11/32	30 1/4	8 5/8	
Franklin 4AC199-D3	226	Hor	Air	4-4 1/4x3 1/2	199.0	6.30	110	No	4	1	1	I	85	2500	SL	85	2500	63 3/4	2300	73	D	209	3.28	1-MS	Eis	Mag	2	Au	EM	30 1/4	24 1/8	30 1/4	13 1/8	
Franklin 4AC199-E2	226	Hor	Air	4-4 1/4x3 1/2	199.0	7.00	117	No	4	1	1	I	90	2500	SL	90	2500	67 1/2	2300	80	D	190	2.82	1-MS	Eis	Mag	2		PS	28 5/8	19 11/32	30 1/4	8 5/8	
Franklin 4AC199-E3	226	Hor	Air	4-4 1/4x3 1/2	199.0	7.00	117	No	4	1	1	I	90	2500	SL	90	2500	67 1/2	2300	80	D	209	3.10	1-MS	Eis	Mag	2	Au	EM	30 1/4	24 1/8	30 1/4	13 1/8	
Franklin 6AC264-C3	222	Hor	Air	6-4x3½	264.0	6.30	106	No	4	1	1	I	100	2375	SL	100	2375	75	2125	73	D	266	3.55	1-MS	Eis	Mag	2	Au	EM	40	24 1/8	30 1/4	13 1/8	
Franklin 6AC264-D3	222	Hor	Air	6-4x3½	264.0	6.30	105	No	4	1	1	I	110	2600	SL	110	2600	82½	2350	73	D	266	3.23	1-MS	Eis	Mag	2	Au	EM	40	24 1/8	30 1/4	13 1/8	
Franklin 6AC264-F3	222	Hor	Air	6-4x3½	264.0	7.00	115	No	4	1	1	I	120	2600	SL	120	2600	90	2350	80	D	267	2.97	1-MS	Eis	Mag	2	Au	EM	40	24 1/8	30 1/4	13 1/8	
Franklin 6AC298-D3	225	Hor	Air	6-4 1/4x3 1/2	298.0	6.30	110	No	4	1	1	I	130	2600	SL	130	2600	97 1/2	2350	73	D	279	2.86	1-MS	Eis	Mag	2	Au	EM	40	24 1/8	30 1/4	13 1/8	
Franklin 6AC298-E3	225	Hor	Air	6-4 1/4x3 1/2	298.0	6.30	118	No	4	1	1	I	130	2450	SL	130	2450	97 1/2	2200	73	D	284	2.92	2-MS	Eis	Mag	2	Au	EM	40	24 1/8	30 1/4	13 1/8	
Franklin 6AC298-F3	225	Hor	Air	6-4 1/4x3 1/2	298.0	7.00	113	No	4	1	1	I	130	2550	SL	130	2550	97 1/2	2300	80	D	280	2.87	1-MS	Eis	Mag	2	Au	EM	40	24 1/8	30 1/4	13 1/8	
Guiberson-Diesel A-1020	220	Rad	Air	9-5 1/16x5 1/2	1021.0	14.00	84	No	5	1	1	I	310	2150	SL	310	2150	200	1850		D	653	3.26						CO	CS	33 3/8	47				20
Jacobs L-4M	121	Rad	Air	7-5 1/4x5	757.0	5.38	88	No	5	1	1	I	225	2000	SL	245	2200	160	1900	73	D	497	3.10	1-Str	Scin	Mag	2	Ecl	EM	37 1/8	43 1/2			16½
Jacobs L-4MB	121	Rad	Air	7-5 1/4x5	757.0	5.38	88	No	5	1	1	I	225	2000	SL	245	2200	160	1900	73	D	495	3.09	1-Str	Scin	B.M.	(b)	Ecl	EM	40 1/8	43 1/2			16½
Jacobs R-755-9, L4MBB	121	Rad	Air	7-5 1/4x5	757.0	5.40	88	No	5	1	1	I	225	2000	SL	245	2200	160	1900	73	D	513	3.21	1-Str	Scin	B.M.	(b)	Ecl	EM	19 1/8	4 1			13½
Jacobs R-755-5, L-4MA7	121	Rad	Air	7-5 1/4x5	757.0	5.38	88	No	5	1	1	I	225	2000	SL	245	2200	160	1900	73	D	500	3.12	1-Str	Scin	Mag	2	Ecl	EM	37 1/8	43 1/4			16½
Jacobs R-755-7, L-4PT	121	Rad	Air	7-5 1/4x5	757.0	5.38	93	No	5	1	1	I	225	2000	SL	225	2000	165	1850	65	D	515	3.12	1-Str	Scin	Mag	2	Ecl	EM	39 3/4	43 1/2			22
Jacobs L-6M	195	Rad	Air	7-5 1/2x5 1/2	914.0	6.00	96	No	5	1	1	I	300	2100	3700	330	2200	210	1900	80	D	557	2.65	1-Str	Scin	Mag	2	Ecl	EM	36 13/16	45 5/8			16½
Jacobs L-6MB	195	Rad	Air	7-5 1/2x5 1/2	914.0	6.00	96	No	5	1	1	I	300	2100	3700	330	2200	210	1900	80	D	555	2.64	1-Str	Scin	B.M.	(b)	Ecl	EM	40 1/8	45 5/8			16½
Jacobs R-915-3, L-6MBA	195	Rad	Air	7-5 1/2x5 1/2	914.0	6.30	96	No	5	1	1	I	300	2100	SL	330	2200	210	1900	80	D	570	2.71	1-Str	Scin	B.M.	(b)	Ecl	EM	20 1/32	45 5/8			16½
Ken-Royce (2) 5E	48	Rad	Air	5-4 1/8x3 3/4	250.5	5.40	114‡	No	3	1	1	I	70	1950	SL					73	D	245	3.50‡	1-Str	BS	Mag	2		PE	23 3/4	33 1/4				
Ken-Royce 5F	46	Rad	Air	5-4 1/4x3 3/4	266.0	6.00	119‡	No	3	1	1	I	90	2250	SL					73	D	226	2.51‡	1-Hol	BS	Mag	2		PE	23 3/4	33 1/4				
Ken-Royce 7F	52	Rad	Air	7-4 1/4x3 3/4	372.0	6.00	115‡	No	3	1	1	I	120	2225	SL					73	D	285	2.38‡	1-Hol	BS	Mag	2		PE	24 1/8	33 1/4				
Kinner K-5-2	3	Rad	Air	5-4 1/4x5 1/4	372.0	5.10	99	No	5	1	1	I	100	1810	SL	100	1810	75	1610	73	D	304	4.05	1-SH	BS	Mag	2	Ecl	HE	32 1/8	45 3/8			
Kinner B-5-2-B54	51	Rad	Air	5-4 5/8x5 1/4	441.0	5.25	94	No	5	1	1	I	125	1925	SL	125	1925	90	1725	73	D	312	3.47	1-SH	BS	Mag	2	Ecl	HE	33 5/8	45 3/8			
Kinner R5-2	153	Rad	Air	5-5x5½	540.0	5.50	102	No	5	1	1	I	160	1850	SL	160	1850	115	1650	73	D	335	2.91	1-SH	BS	Mag	2	Ecl	HE	33 1/2	45 5/8			
Kinner R-55	153	Rad	Air	5-5x5½	540.0	5.50	102	No	5	1	1	I	160	1850	SL	160	1850	115	1650	73	D	345	3.00	1-SH	BS	Mag	2	Ecl	HE	33 1/2	45 5/8			
Kinner R-53	153	Rad	Air	5-5x5½	540.0	6.00	100	No	5	1	1	I	175	2100	SL	175	2100	130	1900	73	D	351	2.70	1-SH	BS	Mag	2	Ecl	HE	33 1/2	45 5/8			
Kinner C-7	122	Rad	Air	7-5 5/16x6	1044.0	5.25	100	No	5	1	1	I	300	1800	SL	300	1800	210	1600	73	D	600	2.86	1-Str	BS	Mag	2	Ecl	HE	44 1/2	47 3/4			
Kinner SC-7	175	Rad	Air	7-5 5/16x6	1044.0	5.50	107	9.71	5	1	1	I	350	1900	5000	350	1900	240	1700	73	D	650	2.71	1-Str	BS	Mag	2	HE	Ecl	45 1/32	47 3/4			
Lycoming (3) O-145A2	199	Hor	Air	4-3 5/8x3 1/2	144.5	5.65	110	No	4	1	1	I	55	2300	SL	55	2300	42	2100	73	D	163	3.88	1-SM	SES	Mag	2			24 5/8	20 1/32	29 1/16		10¼
Lycoming O-145A3	199	Hor	Air	4-3 5/8x3 1/2	144.5	5.65	110	No	4	1	1	I	55	2300	SL	55	2300	42	2100	73	D	165	3.94	1-SM	SES	Mag	2	Ecl	EM	24 5/8	22 1/32	29 1/16		10¼
Lycoming O-145A4	199	Hor	Air	4-3 5/8x3 1/2	144.5	5.65	110	No	4	1	1	I	55	2300	SL	55	2300	42	2100	73	D	174	4.15	1-SM	SES	Mag	2	DR	EM	26	23	29 1/16		
Lycoming O-145B2	210	Hor	Air	4-3 5/8x3 1/2	144.5	6.50	112	No	4	1	1	I	65	2550	SL	65	2550	47	2300	73	D	163	3.48	1-SM	SES	Mag	2			24 5/8	20 1/32	29 1/16		10¼
Lycoming O-145B3	210	Hor	Air	4-3 5/8x3 1/2	144.5	6.50	112	No	4	1	1	I	65	2550	SL	65	2550	47	2300	73	D	166	3.52	1-SM	SES	Mag	2	Ecl	EM	24 5/8	22 1/32	29 1/16		10¼
Lycoming O-145B4	210	Hor	Air	4-3 5/8x3 1/2	144.5	5.65	112	No	4	1	1	I	65	2550	SL	65	2550	47	2300	73	D	175	3.73	1-SM	SES	Mag	2	DR	EM	26	23	29 1/16		
Lycoming O-145C2	210	Hor	Air	4-3 5/8x3 1/2	144.5	6.50	108	No	4	1	1	I	75	3100	SL	75	3100	55	2800	73	D	163	2.97	1-SM	SES	Mag	2			24 5/8	20 1/32	29 1/16		10¼
Lycoming O-145C3	210	Hor	Air	4-3 5/8x3 1/2	144.5	6.50	108	No	4	1	1	I	75	3100	SL	75	3100	55	2800	73	D	166	3.02	1-SM	SES	Mag	2	Ecl	EM	24 5/8	22 1/32	29 1/16		10¼
Lycoming O-145C4	210	Hor	Air	4-3 5/8x3 1/2	144.5	6.50	108	No	4	1	1	I	75	3100	SL	75	3100	55	2800	73	D	175	3.73	1-SM	SES	Mag	2	DR	EM	26	23	29 1/16		

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German Military Airplanes

The following specifications of German military aircraft have been obtained through the courtesy of the British publication AEROPLANE. The details shown apply to German military aircraft now in service although some few may not still be in production.

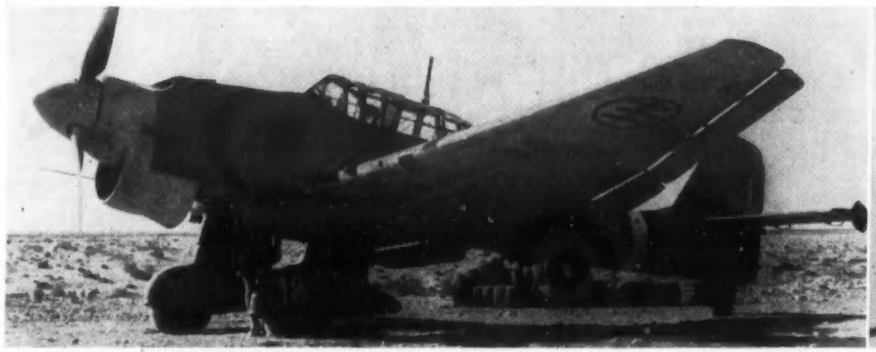
MAKE AND MODEL	TYPE	CREW	ARMAMENT	ENGINE			DIMENSIONS				WEIGHTS (LB.)		PERFORMANCE			
				No. Used	Hp. per Motor	Make	Span	Length	Height	Wing Area (Sq. ft.)	Empty	Loaded	Maximum Speed at Altitude	Range (Miles at mph)	Initial Climb (fpm)	Service Ceiling (ft)
Ago Ao192 Kurier	Light Transport	2 & 6p		2	240	Hirth	45′ 0″	34′ 2½″	11′ 9½″	276.0	3,960	6,220	208 @ SL	650 @ 171	.....	16,400
Arado Ar68G	Fighter Trainer	1–	2-f-mc.g, f-f	1	750	BMW	36′ 0″	31′ 2″	10′ 10″	293.7	3,476	4,410	205 @ SL	310 @ 180	1200	24,200
Arado Ar77	Trainer	4 to 5		2	240	Argus	58′ 8″	38′ 5″	.....	466.0	2,800	4,860	152 @ SL	447 @ 125	783	15,200
Arado Ar79	Light Trainer	2		1	105	Hirth	32′ 9½″	25′ 0″	6′ 10½″	151.0	1,014	1,675	143 @ 1,000	636 @ 127	1020	18,040
Arado Ar95	Torpedo-bomber	2	1-f-mc.g; 1-m-mc.g	1	845	BMW	41′ 0″	35′ 5.2″	12′ 9½″	480.7	4,983	7,260	185 @ 9,840	800 @ 162	1640	26,000
Arado Ar95See	Torpedo-seaplane	3	1-f-mc.g; 1-m-mc.g	1	845	BMW	41′ 0″	36′ 5″	17′ 0″	480.7	5,390	7,854	170 @ 9,840	720 @ 142	1321	23,944
Arado Ar96	Advanced Trainer	2		1	240	Argus	36′ 1″	28′ 8″	8′ 8″	184.0	2,244	3,322	183 @ 1,000	490 @ 149	1250	15,090
Arado Ar96B	Advanced Trainer	2		1	450	Argus	36′ 1″	29′ 8″	8′ 8″	184.0	2,607	3,839	211 @ 9,840	685 @ 171	1320	23,616
Arado Ar196	Twin float catapult seaplane	2	2-can; 2-mc.g; f-f; 1-m-mc.g	1	920	Bramo	49′ 6″	38′ 6″	16′ 5″	408.0	6,580	8,200	193 @ 13,000	670 @ 158	980	23,000
Arado Ar197	Shipboard flighter	1	2-f-mc.g; 1-sh.g	1	880	BMW	36′ 0″	30′ 6″	10′ 10″	293.7	3,610	4,600	220 @ 9,000	.....	.....	.....
Blohm und Voss Ha137A	Dive bomber	1	4-f-mc.g, f-f; 1-250 kg. bomb	1	770	BMW	36′ 7″	31′ 0″	13′ 1″	252.8	3,800	5,300	211 @ 8,000	320 @ 185	2100	23,000
Blohm und Voss Ha138	Flying-boat	5	3-sg. turrets	3	600	Junkers	88′ 7″	65′ 3½″	18′ 10″	1204.0	17,820	26,180	171 @ SL	1490 @ 146	729	16,000
Blohm und Voss Ha139B	Mine-laying float-plane	4	2-f-mc.g, f-f; m.g. rear	4	600	Junkers	96′ 9″	64′ 6″	15′ 9″	1399.0	22,902	38,610	202 @ SL	3230 @ 168	656	14,100
Blohm und Voss Ha140	Mine-laying seaplane	3	sg. in nose and h-o guns	2	880	BMW	68′ 10″	57′ 9″	20′ 0″	941.0	13,860	18,700	199 @ 13,000	715 @ 180	850	23,000
Bucker Bu131B	Initial Trainer	2		1	100	Hirth	24′ 3″	21′ 8″	7′ 5″	145.0	836	1,474	115 @ SL	500 @ 106	590	14,000
Bucker Bu133C-(IL)	Advanced Trainer	1		1	140	Hirth	21′ 7½″	19′ 4″	7′ 4½″	130.0	925	1,290	115 @ SL	400 @ 106	630	14,000
Bucker Bu133C-(Rad)	Aerobatic Trainer	1		1	160	Siemens	21′ 7½″	19′ 4″	7′ 4½″	130.0	925	1,290	134 @ SL	310 @ 125	1170	20,000
Bucker Bu181	Comm. & Trainer	2		1	85	Hirth	34′ 9″	25′ 5″	6′ 5″	145.3	1,056	1,650	133 @ SL	500 @ 120	620	16,400
Dornier Do17Z2	Bomber	4	6-m-mc.g	2	1000	Bramo	59′ 0″	52′ 5½″	15′ 9″	592.0	11,484	19,481	275 @ 16,400	745 @ 248	.....	29,600
Dornier Do18E & F	Mail Carrier	4		2	560	Junkers	86′ 3″	63′ 1″	17′ 8″	1196.5	12,760	24,200	155 @ SL	3600 @ 136.6	(1)	18,370
Dornier Do18K2	Flying-boat	4	1-sg. turret; 1-h-o mc.g	2	865	BMW	77′ 9″	63′ 1″	18′ 0″	1054.0	12,600	30,000	186 @ 7,200	2700 @ 161	830	17,400
Dornier Do23	Bomber-transport	4	3-h-o, mc.g	2	750	BMW	84′ 0″	61′ 7″	17′ 8″	1163.0	12,320	20,240	161½ @ 1,000	930 @ 130	886	13,776
Dornier Do24	Flying-boat	6	3-sg. turrets	3	760	BMW	88′ 7″	72′ 2″	17′ 10″	1162.0	17,000	29,770	195 @ 5,900	2050 @ 161	.....	17,390
Dornier Do26K	Flying-boat	4	1-23 mm. can; 2-h-o, mc.g	4	600	Junkers	98′ 6″	80′ 6″	22′ 6″	1290.0	.....	.....	208 @ 1,000	5100 @ 140	.....	.....
Dornier Do215	Bomber	4	mc.g in nose, top & below cabin, f-a	2	1050	Daimler	59′ 1″	53′ 6″	15′ 9″	592.0	11,685	18,960	311 @ 16,400	965 @ 264	1300	29,600
Dornier Do217(*)	Long range bomber	4	**	2	1320	BMW	72′ 0″	63′ 5″	.....	830.0	16,800	30,850†	294 @ 19,000	4500 @ 200	.....	.....
Erla 5D	Communications	1		1	50	Zundapp	36′ 1″	21′ 0″	5′ 9″	147.4	584	848	99 @ SL	300 @ 90	528	15,000
Fieseler Fi156	Communications	3		1	240	Argus	46′ 9″	32′ 6″	10′ 0″	279.7	1,892	2,772	109 @ SL	.....	945	17,056
Fieseler Fi156K	Communications	3	1-mc.g on top of fuselage	1	240	Argus	46′ 9″	32′ 6″	10′ 0″	279.7	1,920	2,772	106 @ SL	.....	930	17,000
Focke-Wulf Fw44J	Initial Trainer	2		1	150	BMW	29′ 6″	23′ 11″	8′ 10″	215.0	1,157	1,914	114.8 @ SL	350 @ 106.8	.....	12,792
Focke-Wulf Fw56	Advanced Trainer	1		1	240	Argus	34′ 5″	24′ 11″	8′ 4″	150.6	1,529	2,191	172.6 @ SL	286 @ 145	.....	20,336
Focke-Wulf Fw58W	Advanced Trainer	4	1-mc.g, f-f; 1- rear m-mc.g	2	240	Argus	68′ 11″	46′ 3″	13′ 9″	505.7	4,123	6,394	158 @ SL	465 @ 130	1090	17,700
Focke-Wulf Fw187	Two-seater fighter	2	2-can, f-f; 4-mc.g, f-f	2	1150	Daimler	50′ 6″	33′ 6″	.....	300.0	.....	12,000	362 @ 19,685	.....	3450	38,940
Focke-Wulf Fw189	Army co-operation	3	1-f-can, f-f; 4-f-mc.g, f-f; 1-h-o, mc.g	2	450	Argus	60′ 4″	39′ 4″	.....	409.0	5,920	7,480	222 @ 8,500	.....	1640	27,550
Focke-Wulf Fw190(*)	One-seater fighter	1	Probably 8-mc.g	1	1320	BMW‡	37′ 0″	.....	.....	.....	.....	7,000	370 @ 19,000	525 @ 300	.....	40,000
Focke-Wulf Fw200K2	Bomber	5	2-cannon, 1-mc.g	4	1320	BMW	108′ 6″	78′ 3″	23′ 4″	1290.0	28,700	44,100	279 @ 18,100	2300 @ 224	940	28,850
Gotha Go145B	Trainer	2	1-f-mc.g, f-f; 1-rear m-mc.g	1	240	Argus	29′ 6″	28′ 5″	9′ 6″	234.1	1,918	2,976	132 @ SL	400 @ 112	.....	12,140
Gotha Go145D	Advanced Trainer	2	1-f-mc.g, f-f; 1-rear m-mc.g	1	240	Argus	29′ 6″	28′ 5″	9′ 6″	234.1	1,936	3,036	136.6 @ SL	420 @ 117.9	.....	13,120
Gotha Glider	Transport glider	10	6-tg; 6-smc.g; 2-mc.g	.....	.....	.....	72′ 0″	48′ 0″	.....	.....	1,800	4,500	100 @ SL	.....	.....	.....
Heinkel He45	Advanced Trainer	2		1	660	BMW	37′ 8″	33′ 1½″	.....	372.0	4,000	6,060	164 @ SL	.....	.....	.....
Heinkel He46	Bomber	2	1-f-mc.g, f-f; 1-rear mc.g	1	715	Siemens	46′ 8″	32′ 6″	.....	.....	.....	6,420	147 @ SL	620 @ 119	.....	.....
Heinkel He51B	Fighter & bomber trainer	1	2-f-mc.g	1	750	BMW	36′ 0″	27′ 6″	10′ 6″	292.6	3,553	4,180	205 @ SL	250 @ 162	2290	24,700
Heinkel He51W	Seaplane Trainer	1	2-f-mc.g	1	750	BMW	36′ 0″	29′ 0″	.....	292.6	4,080	4,710	189 @ SL	210 @ 148	1920	21,000
Heinkel He59	Bomber float-plane	4	1-m-mc.g, f-f; 1-top mc.g; 1-mc.g below	2	750	BMW	77′ 9″	57′ 1″	23′ 6″	1649.0	13,673	19,800	137 @ SL	1090 @ 109	680	11,240
Heinkel He60	Seaplane Trainer	2	1-f-mc.g, f-f; 1-m-mc.g rear	1	750	BMW	44′ 10″	37′ 8″	17′ 4″	605.0	6,105	7,480	149 @ SL	588 @ 118	1025	16,400
Heinkel He64C	Trainer	2		1	150	Argus	32′ 2″	27′ 3″	6′ 9″	155.0	1,056	1,716	152 @ SL	940 @ 124	.....	.....
Heinkel He70	Transport	2 & 4p		1	660	BMW	48′ 6¾″	39′ 4½″	10′ 2″	292.9	5,566	7,612	224 @ SL	560 @ 103	1310	18,000
Heinkel He70K	Bomber	2 or 3	1-f-mc.g, f-f; 1-m-mc.g	1	750	BMW	48′ 7″	39′ 5″	10′ 2″	293.0	6,100	7,900	219 @ SL	600 @ 170	1200	17,500
Heinkel He72	Trainer	2		1	150	Siemens	29′ 6″	24′ 7″	8′ 10″	223.0	1,298	1,980	112 @ SL	460 @ 93	547	11,480
Heinkel He72	Trainer seaplane	2		1	150	Siemens	29′ 6″	26′ 3″	10′ 0″	223.0	1,610	2,200	106 @ SL	440 @ 90	.....	.....
Heinkel He74	Trainer	1		1	240	Argus	26′ 9″	21′ 1″	7′ 2″	157.0	1,540	2,650	176 @ SL	434 @ 142	1587	25,900
Heinkel He111A	Transport	2 & 10p		2	660	BMW	74′ 3″	58′ 2″	12′ 9″	947.0	12,120	17,350	213 @ SL	930 @ 186	1090	.....
Heinkel He111K2a	Bomber	4	3-m-mc.g	2	1050	Mercedes	73′ 10″	57′ 5″	12′ 9″	942.0	12,826	27,247	252 @ 11,800	620 @ 214	840	22,000
Heinkel He111K5a	Bomber	6	6-h-o, mc.g	1	1200	Junkers	74′ 3″	54′ 6″	13′ 9″	942.0	14,400	25,000*	274 @ 12,300	2140 @ 230*	1050	24,100
Heinkel He111H&L(*)	Torpedo bomber	6	2-18 in. tor; 6-mc.g; 1-can	2	1150	DB	74′ 6″	53′ 7″	13′ 9″	942.0	16,000	27,400	254 @ 13,100	1100 @ 215	800	24,100
Heinkel He112B	Fighter	1	2-mc.g, f-f; 2-can in wings	1	910	Mercedes	29′ 10″	29′ 6″	12′ 1½″	183.0	4,120	5,740	352 @ 12,300	710 @ 280	2755	31,000
Heinkel He113	Fighter	1	120-mm. can, f-f; 2-mc.g in wings	1	1360	Mercedes	30′ 10″	28′ 10″	8′ 3″	156.0	.....	.....	380 @ 19,000	.....	.....	.....

Heinkel	He114	Floatplane	2	1-f-mc.g, f-f	1	830	BMW	44′ 6″	39′ 0″	16′ 11″	455.0	5,940	7,656	183 @ 8,400	560 @ 143	1090	15,750
Heinkel	He115K1	Floatplane	3	2-m-mc.g	2	770	BMW	72′ 10″	53′ 2″	21′ 7⅜″	941.5	11,670	20,000	209 @ 9,200	.....	.....	.....
Heinkel	He115K2	Torpedo floatplane	3	1-mc.g, f-f; 1-1,764 lb. torpedo	2	850	BMW	72′ 10″	56′ 9″	21′ 7⅜″	941.5	13,530	20,790	217 @ 11,150	1305 @ 186	728	21,320
Heinkel	He116	Communications	4 & 8p	.....	4	270	Hirth	72′ 2″	44′ 11″	12′ 6½″	677.0	9,592	15,686	233 @ 9,840	2795 @ 198	820	21,650
Heinkel	He170	Bomber	2	1-f-mc.g, f-f; 2-m-mc.g	1	850	BMW	.....	48′ 6″	10′ 1″	392.7	.....	.....	.....	.....	.....	.....
Heinkel	He170K2	Bomber	2	1-f-mc.g, f-f; 2-m-mc.g	1	910	Mercedes	48′ 6″	39′ 4″	10′ 1″	392.7	5,647§	9,163	248 @ 12,300§	994 @ 236§	.....	24,600§
Heinkel	He177(*)	Heavy Bomber	6–8	.....	4	1460	Mercedes	103′ 4″	67′ 3″	18′ 2″	1660.0	35,000	71,600*	280 @ 19,000	7040 @ 180	840	25,000
Heinkel	He270K	Bomber	2	1-f-mc.g, f-f-; 2-m-mc.g	1	910	Mercedes	48′ 6″	39′ 0″	13′ 9″	392.7	5,874	9,427	279 @ 13,000	994 @ 267	.....	29,520
Henschel	Hs123A	Dive bomber	1	2-f-mc.g; 1-bomb	1	880	BMW	34′ 5″	26′ 3″	9′ 0″	267.3	3,312	4,884	248 @ 9,200	530 @ 223	2980	29,500
Henschel	Hs123B	Dive bomber	1	2-f-mc.g; 1-bomb	1	1000	Bramo	34′ 5″	26′ 3″	9′ 0″	267.3	3,516	4,950	262 @ 12,300	.....	.....	.....
Henschel	Hs125	Advanced Trainer	1	.....	1	240	Argus	32′ 9″	24′ 1″	9′ 2″	150.6	1,529	2,145	174 @ SL	310 @ 155	.....	22,960
Henschel	Hs126	Army Co-operation	2	.....	1	870	BMW	47′ 6¾″	35′ 7″	12′ 3½″	340.0	4,466	6,798	220 @ 9,840	680 @ 197	1870	27,880
Junkers	F13	Communications	2 & 6p	.....	1	310	Junkers	58′ 3″	34′ 7″	11′ 6″	473.7	.....	.....	126 @ SL	400 @ 110	.....	17,400
Junkers	W33	Communications	2 & 4p	.....	1	310	Junkers	58′ 3″	34′ 6″	11′ 7″	473.7	3,220	5,960	132 @ SL	400 @ 106	550	17,720
Junkers	W33W	Seaplane	2 & 4p	.....	1	310	Junkers	58′ 3″	35′ 9″	12′ 10″	473.7	3,930	5,950	118 @ SL	400 @ 93	470	15,400
Junkers	W34W	Seaplane	2 & 6p	.....	1	600	BMW	58′ 3″	36′ 0″	12′ 10″	473.7	4,020	7,050	149 @ 3,000	490 @ 127	820	20,350
Junkers	Ju52-3mK	Bomber	4	4-h-o-mc.g	3	660	BMW	95′ 11″	62′ 0″	14′ 10″	1190.0	14,170	22,000	180 @ 5,500	700 @ 150	.....	20,000
Junkers	Ju52-3mZ	Transport	3 & 17p	2-mc.g	3	845	BMW	95′ 11″	63′ 0″	14′ 10″	1190.0	16,320	27,550	207 @ 8,500	806 @ 185	1020	22,250
Junkers	Ju60	Transport	2 & 6p	.....	1	600	BMW	46′ 11″	38′ 10″	12′ 9″	377.0	4,460	6,850	173 @ 3,000	745 @ 148	888	17,000
Junkers	Ju86K	Bomber	4	3-h-o-mc.g	2	600	Junkers	73′ 10″	57′ 6″	15′ 8″	883.0	12,200	17,770	222 @ 1,000	1200 @ 170	.....	21,000
Junkers	Ju86K1	Bomber	4	3-h-o-mc.g	2	660	Junkers	73′ 9″	58′ 8″	15′ 8″	882.3	11,354	17,770	224 @ 1,000	1555 @ 174	.....	21,300
Junkers	Ju86K2	Bomber	4	3-m-mc.g	2	880	BMW	73′ 10″	59′ 0″	15′ 8″	883.0	11,308	18,040	239 @ 9,840	1242 @ 205	820	24,380
Junkers	Ju87A	Dive Bomber	2	1-f-mc.g; 1-m-mc.g	1	680	Junkers	45′ 4″	35′ 5″	13′ 11″	344.0	5,020	7,510	198 @ 12,000	620 @ 169	1540	26,200
Junkers	Ju88A1	Bomber	4	4-m-mc.g	2	1200	Junkers	60′ 3½″	47′ 1″	15′ 5″	540.0	16,870	25,520	310 @ 15,500	960 @ 280(a)	.....	29,800
Junkers	Ju88A4	Bomber	4	7-m-mc.g	2	1200	Junkers	65′ 0″	47′ 1″	15′ 5″	.....	.....	.....	280 @ 15,500*	870 @ 252*	.....	.....
Junkers	Ju88A6	Bomber	4	.....	2	1450	Junkers	65′ 0″	47′ 1″	15′ 5″	.....	.....	.....	300 @ 18,500*	800 @ 254*	.....	.....
Junkers	Ju88B	Fighter	3	Can and mc.g	2	1200	Junkers	60′ 3½″	49′ 2″	.....	540.0	.....	.....	321 @ 15,500*	960 @ 280*	.....	.....
Junkers	Ju90B	Transport	4 & 10p	.....	4	820	BMW	114′ 10″	86′ 3″	21′ 3″	1980.0	35,200	50,600	216 @ 3,610	1305 @ 185	890	18,040
Junkers	Ju160	Transport	2 & 6p	.....	1	670	BMW	46′ 9″	39′ 4″	13′ 2″	377.0	6,105	7,810	211 @ 3,000	745 @ 180	885	17,710
Klemm	K125L	Communications	2	.....	1	80	Hirth	42′ 7½″	24′ 7″	6′ 8″	215.0	858	1,544	99 @ SL	404 @ 87	.....	13,120
Klemm	K125W	Communications	2	.....	1	80	Hirth	42′ 7½″	25′ 10″	8′ 9″	215.0	1,056	1,544	90 @ SL	373 @ 81	.....	11,480
Messerschmitt	Me108B	Communications	4	.....	1	270	Argus	34′ 5″	27′ 2″	7′ 6½″	172.16	1,887	3,087	196 @ SL	621 @ 187	1000	20,340
Messerschmitt	Me109E	Fighter	1	1-can; 4-mc.g	1	1150	Mercedes	30′ 3¼″	26′ 8″	7′ 5½″	176.5	4,180	5,520	354 @ 12,300	560 @ 248	3100	36,000
Messerschmitt	Me109F1	Fighter	1	1-can; 2-mc.g	1	1085	Mercedes	32′ 8″	29′ 8″	8′ 6″	173.0	4,740	6,090	371 @ 22,000	370 @ 307	3200	40,000
Messerschmitt	Me109F2	Fighter	1	1-can; 2-mc.g	1	1150	Mercedes	32′ 8″	29′ 8″	8′ 6″	173.0	4,740	6,090	371 @ 22,000	.....	3200	40,000
Messerschmitt	Me110C5	Fighter	2	2-can; 4-f-mc.g; 2-m-mc.g	2	1150	Mercedes	53′ 4″	40′ 9″	10′ 9″	414.0	9,900	15,300	365 @ 16,400	1500 @ 215	.....	35,000
Messerschmitt	Me110S	Bomber	2	4-f-mc.g; 2-bombs	2	1150	Mercedes	53′ 4″	40′ 9″	10′ 9″	414.0	9,900	15,300	365 @ 19,000	1500 @ 215	.....	.....
Messerschmitt	Me210	Fighter Bomber	2–4	.....	2	1500	Mercedes	55′ 0″	.....	.....	.....	.....	.....	285 @ 18,500*	.....	.....	42,000
Messerschmitt	Jaguar	Bomber	4	3-can; 2-mc.g	2	1150	Mercedes	53′ 4″	.....	.....	414.0	.....	.....	320 @ 16,400	.....	.....	.....

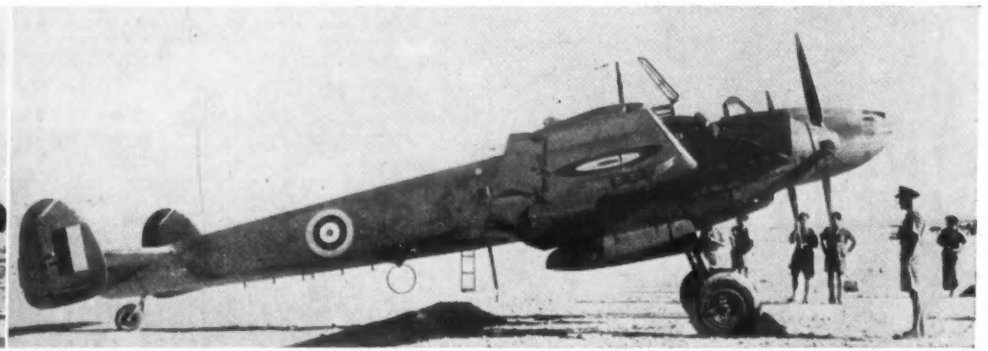
ABBREVIATIONS:

*—These details are approximate and should be taken only as general indications
**—Details unknown but include retractable, electrically operated turret on top of fusilage
†—Overload 35,000 pounds
‡—14-cylinder radial motor with fully enclosed cowling
•—Maximum overload 27,400 pounds
■—Overload range 2,640 miles
§—Equipped for bombing
*—Overload 82,000 pounds
(1)—1,000 meters in 5 minutes
(a)—With 5,750 pounds of bombs

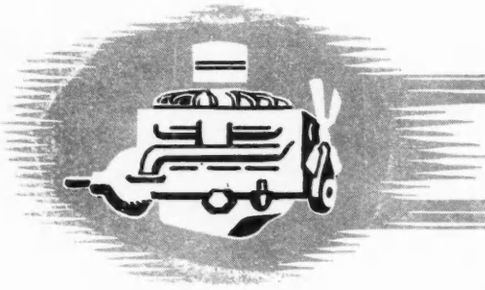
Can—Cannon
Comm—Communications
f—Fixed
f-a—Firing aft
f-f—Firing forward
fpm—Feet per minute
g—Guns
h-o—Hand operated
(IL)—In line
kg—Kilogram
m—Movable
mc.g—Machine gun
mph—Miles per hour
p—Passengers
Rad—Radial
Recon—Reconnaissance
sh.g—Shell gun
sg—Single gun
SL—Sea level
smc.g—Sub-machine gun
tg—Tommy-gun
tor—Torpedoes



Junkers—Ju 87B—Dive Bomber.



A captured Messerschmitt now in use with the British



AMERICAN

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Allis-Chalmers B-15	Tr,Ind	4-3¼x3½	24-1800	22-1800	116.2	4.92	74-1100 (EA)	W	In	I	Sil	1.43	1.31	1.20	1.03	.378	.378	.341	.341
2	Allis-Chalmers W-25	Tr,Ind	4-4x4	44-1800	40-1800	201.1	5.00	128-1200 (EA)	W	In	I	Sil	1.68	1.50	1.50	1.32	.376	.376	.372	.372
3	Allis-Chalmers U-40	Tr,Ind	4-4½x5	56-1400	51-1400	318.0	4.75	200-1000 (EA)	W	In	I	Sil	2.03	1.78	1.75	1.50	.375	.375	.372	.372
4	Allis-Chalmers E-60	Tr,Ind	4-5¼x6½	86-1200	78-1200	563.0	5.20	400-700 (EA)	W	In	I	Sil	2.21	2.21	2.00	2.00	.440	.417	.497	.497
5	Allis-Chalmers L-90	Tr,Ind	6-5¼x6½	128-1200	117-1200	844.0	5.20	590-700 (EA)	W	In	I	Sil	2.21	2.21	2.00	2.00	.440	.417	.497	.497
6	Autocar 377	T	6-4x5	119-2800	112-2800	377.0	5.75	280-1400 (BE)	N	Se	L	3140	1.90	1.78	1.68	1.56	.375	.375	.437	.437
7	Autocar 447	T	6-4¼x5¼	133-2500	122-2500	447.0	5.75	351-1100 (BE)	N	Se	L	CNS	2.06	1.93	1.87	1.75	.375	.375	.437	.437
8	Autocar 501	T	6-4½x5¼	145-2500	134-2500	501.0	5.75	395-950 (BE)	N	Se	L	CNS	2.06	1.93	1.87	1.75	.375	.375	.437	.437
9	Brennan Imp. De Luxe	M	4-2x3	20-3900	15-3900	45.0	7.00	31-2500 (EA)	N	Se	I	Sil	1.00	1.00	.875	.875	.250	.250	.312	.312
10	Brennan 20	Ind	4-2¼x3⅛	20-3900	15-3900	50.0	7.40	34-3200 (EA)	N	Se	L	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
11	Brennan Imp. De Luxe Spec.	M	4-2¼x3⅛	25-4000	20-4000	50.0	7.40	34-3200 (EA)	N	Se	I	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
12	Brennan M-4	M	4-4x5	45-1800	38-1800	251.0	5.00	155-1000 (EA)	N	Se	L	NCI								
13	Brennan CE	Ind	4-4½x5	54-1600	45-1600	318.0	5.00	203-1000 (EA)	N	Se	L	Sil	2.00	2.00	1.87	1.87	.375	.375	.375	.375
14	Brennan E-4	M	4-4½x5	54-1600	45-1600	318.0	5.00	203-1000 (EA)	N	Se	L	Sil	2.00	2.00	1.87	1.87	.375	.375	.375	.375
15	Brennan B-70	T,B,Tr,Ind	6-4x5½	90-2000	75-2000	415.0	4.50	278-900 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
16	Brennan 100	M	6-4x5½	94-2000	80-2000	415.0	6.00	278-900 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
17	Brennan B-100	T,B,Tr,Ind	6-4⅜x5½	94-2000	80-2000	496.0	4.50	350-1200 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
18	Brennan 125	M	6-4⅜x5½	110-2200	94-2200	496.0	6.00	350-1200 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
19	Brennan 150	M	6-4½x6½	150-2000	130-2000	620.3	6.00	500-1200 (EA)	N	Se	I	Sil	2.50	2.50	2.12	2.12	.437	.437	.500	.500
20	Bridgeport F-5	M	1-3¾x4½		6-1200	49.0			N	In	I	Sil	1.50	1.50					.312	.312
21	Bridgeport 71	M	1-5½x6½		10-600	154.0			N	Se	L	NCI	2.25	2.25	2.00	2.00			.500	.500
22	Bridgeport F-10	M	2-3¾x4½		12-1200	99.0			N	In	I	Sil	1.50	1.50					.312	.312
23	Bridgeport 162	M	2-5½x6½		20-650	308.0			N	Se	L	NCI	2.25	2.25	2.00	2.00			.500	.500
24	Bridgeport 182	M	2-6½x7½		25-500	497.0			N	Se	L	NCI	2.37	2.37	2.00	2.00			.500	.500
25	Bridgeport 243	M	3-6½x7½		40-500	746.0			N	Se	L	NCI	2.37	2.37	2.00	2.00			.500	.500
26	Bridgeport F-20	M	4-2¾x4		27-2500	95.0			N	In	L	Sil	1.12	1.12					.312	.312
27	Bridgeport Pilot	M	4-4¼x5		55-2000	293.0		225-2000 (EA)	N	In	L	Sil	1.87	1.87	1.62	1.62			.375	.375
28	Bridgeport 304	M	4-5½x6½		45-700	617.0			N	Se	L	NCI	2.25	2.25	2.00	2.00			.500	.500
29	Bridgeport 404	M	4-6½x7½		65-600	995.0			N	Se	L	NCI	2.37	2.37	2.00	2.00			.500	.500
30	Bridgeport Piloteer	M	6-4x4¾		80-2200	358.0		300-2200 (EA)	N	In	L	Sil	2.00	2.00	1.75	1.75			.375	.375
31	Buda HP-205	T,Tr	4-3⅛x4½	51-2400	43-2400	205.0	4.76	112-1200 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
32	Buda HP-217	T,Tr	4-3⅛x4¾	55-2400	47-2400	217.0	5.50	123-1200 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
33	Buda 4HM-217-MD	M	4-3⅛x4¾		56-2400	217.0	5.70	148-1400 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
34	Buda 4HM-217-MHD	M	4-3⅛x4¾		48-1800	217.0	5.70	146-1400 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
35	Buda 4HM-217-HD	M	4-3⅛x4¾		30-1200	217.0	5.70	131-1200 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
36	Buda HP-234	T,Tr	4-3⅛x5¼	59-2400	50-2400	234.0	5.83	133-1200 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
37	Buda KT-281	Tr	4-4¼x5¼	49-1750	42-1750	281.0	4.50	148-1000 (EA)	N	Se	L	Sil	1.87	1.87	1.62	1.62	.281	.312	.372	.372
38	Buda YR-425	T	4-4¾x6	57-1400	48-1400	425.3	3.80	226-800 (EA)	N	Se	L	2112	2.37	2.37	2.12	2.12	.281	.312	.434	.434
39	Buda FRH	T,B,Tr	4-5½x6½	78-1200	66-1200	618.0	4.80	350-600 (EA)	N	Se	L	2112	2.50	2.50	2.25	2.25	.375	.375	.434	.434
40	Buda JK-4	Tr,Ind	4-6x7¼	115-1200	98-1200	836.0	4.70	475-700 (EA)	N	Se	L	2112	2.93	2.93	2.50	2.50	.375	.375	.497	.497
41	Buda JL-877	Tr,Ind	4-6¼x7¼	122-1200	104-1200	874.0	4.80	535-700 (EA)	N	Se	L	2112	2.93	2.93	2.50	2.50	.375	.375	.497	.497
42	Buda HP-260	T,B	6-3⅛x4½	68-2800	58-2800	260.0	4.75	139-1100 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
43	Buda HP-298	T,B,Tr	6-3⅜x4½	77-2800	65-2800	298.0	4.75	161-1100 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
44	Buda HP-326	T,B,Tr	6-3⅛x4¾	78-2400	66-2400	326.0	5.40	188-1000 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
45	Buda HP-351	T,Tr	6-3⅛x5¼	84-2400	71-2400	351.0	5.83	201-1000 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
46	Buda 6HM-326-MD	M	6-3⅛x4¾	80-2400	80-2400	326.0	5.70	225-900 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
47	Buda 6HM-326-MHD	M	6-3⅛x4¾		70-1800	326.0	5.70	225-900 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
48	Buda 6HM-326-HD	M	6-3⅛x4¾		46-1200	326.0	5.70	200-900 (EA)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
49	Buda K-393	T,B,Tr	6-4⅛x4¾	101-2400	86-2400	393.0	4.80	216-1100 (EA)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
50	Buda K-428	T,B,Tr	6-4⅜x4¾	107-2400	91-2400	428.0	5.33	240-1100 (EA)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
51	Buda 6KM-428-MD	M	6-4⅜x4¾		110-2400	428.0	5.50	299-1200 (EA)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
52	Buda 6KM-428-MHD	M	6-4⅜x4¾		96-1800	428.0	5.50	299-1200 (EA)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
53	Buda 6KM-428-HD	M	6-4⅜x4¾		60-1200	428.0	5.50	278-900 (EA)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
54	Buda L-525	T,B,Tr	6-4½x5½	110-2400	94-2400	525.0	4.75	287-800 (EA)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
55	Buda LO-525	T,B,Tr	6-4½x5½	135-2400	115-2400	525.0	5.00	330-1100 (EA)	N	In	I	2112	1.96	1.68	1.75	1.50	.468	.468	.372	.372
56	Buda GF-638	T,B,Tr	6-4⅜x6	134-2000	114-2000	638.0	4.75	347-1100 (EA)	N	Se	L	2112	2.50	2.37	2.25	2.12	.375	.375	.434	.434
57	Buda M-766	T,B,Tr	6-5x6½	155-1800	132-1800	765.8	5.00	425-1000 (EA)	N	In	I	2112	2.39	2.14	2.12	1.87	.540	.540	.435	.435
58	Buda JK-6	Tr,Ind	6-6x7¼	188-1400	160-1400	1230.0	4.70	690-700 (EA)	N	Se	L	2112	2.93	2.93	2.50	2.50	.438	.438	.497	.497
59	Buda JL-1335	Tr,Ind	6-6¼x7¼	164-1000	140-1000	1334.6	4.40	780-600 (EA)	N	Se	L	2112	2.93	2.93	2.50	2.50	.438	.438	.497	.497
60	Buda P-1879	Ind	6-6⅜x8¾	232-1000	197-1000	1879.0	4.50	1110-750 (EA)	W	In	I	2112	2.71	2.53	2.50	2.28	.703	.703	.558	.558
61	Buda PHC-1879	Ind	6-6⅜x8¾	232-1000	197-1000	1879.0		1200-750 (EA)	W	In	I	2112	2.71	2.53	2.50	2.28	.703	.703	.558	.558
62	Buffalo BA	M,Ind	4-3½x5	45-1600	40-1800	192.0	5.00	131-1400 (EA)	N	In	L	NCI	1.93	1.93	1.75	1.75	.312	.375	.375	.375
63	Buffalo RA-4	M,Ind	4-5⅞x7	120-1200	110-1200	759.0	4.60	525-1200 (EA)	N	Se	I	Sil	3.09	2.84	2.87	2.62	.540	.540	.500	.500
64	Buffalo RAB-4	M,Ind	4-6½x7	145-1200	130-1200	929.0	5.00	635-1200 (EA)	N	Se	I	Sil	3.09	2.84	2.87	2.62	.625	.540	.500	.500
65	Buffalo ATT-4	M,Ind	4-8¼x9	275-1200	250-1200	1925.0	4.50	1176-900 (EA)	N	Se	L	Sil	4.12	4.06	3.62	3.44	.812	.812	.683	.683
66	Buffalo RA-6	M,Ind	6-5⅞x7	180-1200	160-1200	1138.0	4.60	790-1200 (EA)	N	Se	I	Sil	3.09	2.84	2.87	2.62	.540	.540	.500	.500
67	Buffalo RAB-6	M,Ind	6-6½x7	215-1200	195-1200	1393.0	5.00	955-1200 (EA)	N	Se	I	Sil	3.09	2.84	2.87	2.62	.625	.540	.500	.500
68	Buffalo ATT-6	M,Ind	6-8¼x9	425-1200	375-1200	2887.0	4.50	1764-900 (EA)	N	Se	L	Sil	4.12	4.06	3.62	3.44	.812	.812	.683	.683
69	Buffalo RA-8	M,Ind	8-5⅞x7	240-1200	220-1200	1518.0	4.60	1050-1200 (EA)	N	Se	I	Sil	3.09	2.84	2.87	2.62	.540	.540	.500	.500
70	Buffalo RAB-8	M,Ind	8-6½x7	300-1200	270-1200	1858.0	5.00	1275-1200 (EA)	N	Se	I	Sil	3.09	2.84	2.87	2.62	.625	.540	.500	.500
71	Buffalo ATT-8	M,Ind	8-8¼x9	550-1200	500-1200	3849.0	4.50	2352-900 (EA)	N	Se	L	Sil	4.12	4.06	3.62	3.44	.812	.812	.683	.683
72	Chevrolet 1942	C,T,B	6-3½x3¾	90-3300	83-3200	216.5	6.50	168-1100 (EA)	N	In	I	AS	1.64	1.46	1.25	1.20	.294	.312	.341	.340
73	Chevrolet 1942	T,B	6-3⅝x3⅛	93-3100	83.5-3000	235.5	6.62	182-1000 (EA)	N	In	I	AS	1.64	1.46	1.25	1.20	.294	.312	.341	.340
74	Chris-Craft *B	M	4-3¼x4		60-3200	132.7	7.50	108-2400 (EA)	N	In	L	CNS	1.50	1.37	1.25	1.12	.312	.312	.310	.310
75	Chris-Craft *▼K	M	6-3⅞x4½		95-3200	229.7	7.35	173-1800 (EA)	N	In	L	CNS	1.60	1.39	1.46	1.25	.312	.312	.310	.310
76	Chris-Craft *▼M	M	6-4x4¼		130-3000	320.4	7.50	239-2400 (EA)	N	In	L	Sil	1.87	1.78	1.71	1.56	.356	.356	.372	.372
77	Chris-Craft *▼W	M	6-4¼x4¾		160-3000	404.3	6.40	322-1500 (EA)	N	In	L	CNS	2.06	1.87	1.81	1.62	.388	.388	.372	.372
78	Chrysler Ace-M6	M	6-3¼x4⅛		92-3200	218.0	6.80	180-1400 (EA)	N	In	L	Sil	1.53	1.41	1.41	1.28	.375	.375	.340	.340
79	Chrysler Crown-M7	M	6-3⅞x4½		115-3200	251.0	6.50	205-1400 (EA)	N	In	L	Sil	1.72	1.53	1.56	1.37	.375	.375	.340	.340
80	Chrysler Royal-M8	M	8-3¼x4⅞		143-3200	323.5	6.80	260-1400 (EA)	N	In	L	Sil	1.53	1.35	1.41	1.22	.375	.375	.340	.340
81	Climax G4C	Ind	4-4½x5¼	46-1200	44-1200	334.0	4.75	216-800 (EA)	W	In	I	Sil	2.00	2.00	1.75	1.75	.406	.406	.375	.375
82	Climax H4B	Ind	4-5¼x6¼	73-1200	68-1200	516.0	4.10	340-800 (EA)	W	In	I	Sil	2.37	2.37	2.12	2.12	.437	.437	.437	.437

(For abbreviations see pages 100-101)

GASOLINE ENGINES

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT																
Seats														MAIN BEARINGS									OVERALL DIMENSIONS (In.)			
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Spark Plug—Thread Size	CARBURETOR Make	CARBURETOR Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Line Number
45	N		HG	CI	39	.813x2.87	3	1040	6½	29	1045	N	1.93x1.22	3	2.25x1.62	2.25x1.50	acag	14 mm	Zen	⅞	360	16 1/16	31 5/16	27	1
45	E	TA	HG	CI	67	.989x3.50	4	1040	7½	42	1045	N	2.37x1.54	3	2.43x1.62	2.50x1.75	abcdeg	14 mm	Zen	1	520	23	31 3/16	33½	2
30	E	TA	HG	CI	92	1.31x4.06	5	1040	9½	92	1045	N	2.37x2.37	3	2.50x2.31	2.50x2.75	abcdeg	⅞–18	Zen	1¼	985	26	37½	43¾	3
45	E	TA	HG	CI	162	1.50x4.87	4	1040	13	182	1045	N	2.75x3.24	3	3.00x3.50	3.00x4.75	abcdeg	⅞–18	Zen	1½	2020	27	44 7/16	53	4
45	E	TA	HG	CI	162	1.50x4.87	4	1040	13	182	1945	N	2.75x3.24	4	3.00x3.50	3.00x4.75	abcdeg	⅞–18	Zen(2)	1½	2810	29¾	63 1/16	72½	5
45	E	71360	HG	AI	43	1.12x3.28	4	2340	10 1/16	65	1050	N	2.37x1.44	7	3.25x1.87	3.25x2.60	abcde	18 mm	Zen	1¼	1165	27½	41	45	6
45	E	71360	HG	AI	51	1.12x3.68	4	2340	10 1/16	78	1050	N	2.50x1.58	7	3.25x1.87	3.25x2.87	abcde	18 mm	Str	1¾	1320	27½	41½	47	7
45	E	71360	HG	AI	57	1.12x3.93	4	2340	10 1/16	78	1050	N	2.50x1.58	7	3.25x1.87	3.25x2.87	abcde	18 mm	Str	1¾	1330	27½	41½	47	8
45	N		HG	AI	6	.625x1.87	3	1045	5¾	14	1045	N	1.31x1.25	2	2.50x1.50	2.50x1.50	abcde	14 mm	Til	¾	160	12¾	17 5/16	29	9
45	N		HG	AI	6	.625x2.00	3	1045	5¾	14	1045	Y	1.31x1.25	3	2.50x1.50	2.50x1.50	abcde	14 mm	Zen	¾	128	12¾	17 5/16	18¾	10
45	N		HG	AI	6	.625x2.00	3	1045	5¾	14	1045	N	1.31x1.25	3	2.50x1.50	2.50x1.50	abcde		Zen	⅞	165	12¾	17 5/16	29	11
			HG	CI		1.17x4.00	4	AS	11		CNS	N	2.56x2.00	3	2.12x4.25	2.12x2.25	abcd		Str	1¼	650	12 7/16	19½	53¼	12
45	N		HG	SS	80	1.17x4.00	4	1045	11	64	1045	N	2.50x2.50	3	2.50x4.25	2.50x3.50	abcde		Str	1¼	600	21	29¾	37 1/16	13
45	N		HG	SS	72	1.17x4.00	5	1045	11	64	1045	N	2.50x2.50	3	2.50x4.25	2.50x3.50	abcder		Str	1¼	950	16	18	53	14
45	N		HG	SS	64	1.17x3.87	4	CNS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	abce		Str	1½	800	25¾	33¾	49	15
45	N		HG	SS	64	1.17x3.87	4	AS			CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	abcdeg		Str	1½	890	19¾	24¾	65	16
45	N		HG	SS	76	1.25x3.87	5	CNS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	abce		Str	1½	875	25¾	33¾	49	17
45	N		HG	SS	70	1.25x3.87	5	AS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x4.50	abcdeg		Str	1½	900	19¾	24¾	65	18
45	N		BG	SS	72	1.37x4.00	5	AS	12	80	CNS	Y	2.62x2.67	7	2.62x6.00	2.62x3.50	abcd		Str	1¾	1450	20	30	74	19
45	N		SG	CI		.750x3.37	3	DFS				Y	1.37x1.50	2	1.37x2.50	1.37x2.50	Splash	⅞–18		1	204	13	24	30	20
45	N		SG	CI	124	1.25x5.25	5	DFS	12½	136		N	2.00x3.00	2	2.00x5.50	2.00x5.50	Splash	⅞–18		1¼	510	20	34	47	21
45	N		HG	CI		.750x3.37		DFS				Y	1.37x1.50	2	1.37x2.50	1.37x2.50	Splash	⅞–18		1¼	306	13	25	33	22
45	N		HG	CI	124	1.25x5.25	5	DFS	12½	136		N	2.00x3.00	3	2.00x5.50	2.00x5.50	ML	⅞–18		1¼	1010	20	35	56	23
45	N		SG	CI	272	1.50x6.00	5	DFS	15½	208		N	2.37x3.00	5	2.37x6.00	2.37x6.00	ML	⅞–18		1½		21	40	63	24
45	N		HG	CI	272	1.50x6.00	5	DFS	15½	208		N	2.37x3.00	4	2.37x6.00	2.37x6.00	ML	⅞–18		1½	2000	21	40	77	25
45	N		HG	CI		.625x2.37	3	DFS			DFS	N	1.50x1.75	3	1.50x2.75	1.50x2.75	ab	⅞–18		1¼	382	17	22	35	26
45	Bo	AS	HG	CI	64	1.37x3.50	4	DFS	9½	56		N	2.00x2.25	3	2.00x3.00	2.00x3.25	abcde	⅞–18		1¼	920	17	28½	53	27
45	N		HG	CI	124	1.25x5.25	5	DFS	12½	136		N	2.00x3.00	5	2.00x5.50	2.00x5.50	ML	⅞–18		1½	1700	20	35	76	28
45	N		HG	CI	272	1.50x6.00	5	DFS	15½	208		N	2.37x3.00	5	2.37x6.00	2.37x6.00	ML	⅞–18		1½	2400	21	40	87	29
45	Bo	AS	HG	CI	64	1.25x3.50	4	DFS	9 5/8	56		N	2.50x1.75	7	3.00x2.00	3.00x3.00	abcde	⅞–18		1½	1500	18	30	64	30
45	N		HG	CI	42	1.12x3.22	4	CS	9½	42	CS	N	2.12x1.62	5	3.00x1.50	3.00x2.12	abcde	18 mm	Zen	1¼	590	26	29 11/16	31 11/16	31
45	N		HG	CI	42	1.12x3.22	4	CS	9½	42	CS	N	2.12x1.62	5	3.00x1.50	3.00x2.12	abcde	18 mm	Zen	1¼	590	25¾	31 1/16	38 1/32	32
45	N		HG	CI	42	1.12x3.22	4	CS	9½	42	CS	N	2.12x1.62	5	3.00x1.50	3.00x2.12	abcder	18 mm	Str	1¼	770	23¼	31 1/16	43 5/16	33
45	N		HG	CI	42	1.12x3.22	4	CS	9½	42	CS	N	2.12x1.62	5	3.00x1.50	3.00x2.12	abcder	18 mm	Str	1¼	770	23¼	31 1/16	43 5/16	34
45	N		HG	CI	42	1.12x3.22	4	CS	9½	42	CS	N	2.12x1.62	5	3.00x1.50	3.00x2.12	abcder	18 mm	Str	1¼	770	23¼	31 1/16	43 5/16	35
45	N		HG	CI	42	1.12x3.22	4	CS	9½	42	CS	N	2.12x1.62	5	3.00x1.59	3.00x2.12	abcde	18 mm	Str	1¼	770	23¼	31 1/16	43 5/16	36
45	N		HG	CI	65	1.50x3.31	4	CS	11¼	89	CS	N	2.00x2.25	3	1.87x2.87	2.12x3.44	abcde	⅞–18	Zen	1¼	875	25¾	33 1/16	40 13/16	37
45	E	JM	HG	CI	111	1.43x4.11	4	AS	13¼	106	CS	N	2.50x2.87	3	2.50x3.00	2.50x4.50	abce	⅞–18	Zen	1½	1087	25¾	36 13/16	47½	38
45	E	DC	HG	CI	144	1.37x4.87	4	AS	14 3/8	163	CS	N	2.50x3.12	3	2.25x4.12	2.62x4.69	abce	⅞–18	Zen	1½	1430	28¾	40 7/16	52 5/16	39
30	E	DC	HG	CI	172	2.00x5.12	4	AS	14 5/8	252	CS	N	3.00x3.31	3	3.00x4.75	3.00x4.75	abcde	⅞–18	Zen	1¾	1925	30	44 1/32	58 1/32	40
30	E	DC	HG	CI	199	2.00x5.33	4	AS	14 5/8	227	CS	N	3.00x3.31	3	3.00x4.75	3.00x4.75	abcde	⅞–18	Zen	1¾	1925	30	40 1/32	58 1/32	41
45	N		HG	CI	37	1.12x2.97	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcde	18 mm	Zen	1½	825	25¾	33 1/16	39 3/32	42
45	N		HG	CI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcde	18 mm	Zen	1½	825	25¾	33 1/16	39 3/32	43
45	N		HG	CI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcde	18 mm	Zen	1½	885	25¾	33 1/16	39 3/32	44
45	N		HG	CI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcde	18 mm	Zen	1½	905	25¾	33 1/16	39 3/32	45
45	N		HG	CI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcder	18 mm	Str	1½	1010	22 5/8	28 1/16	54½	46
45	N		HG	AI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcder	18 mm	Str	1½	1010	22 5/8	28 1/16	54½	47
45	N		HG	AI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcder	18 mm	Str	1½	1010	22 5/8	28 1/16	54½	48
45	N		HG	CI	66	1.25x3.47	4	CS	9½	58	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcde	18 mm	Zen	1¾	905	25¾	30 1/32	47 3/32	49
45	N		HG	AI	68	1.25x3.82	4	CS	9½	58	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcde	18 mm	Zen	1¾	905	25¾	30 1/32	47 3/32	50
45	N		HG	CI	68	1.25x3.82	4	CS	9½	58	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcder	18 mm	Str	1¾	1320	24 1/16	29½	60 1/32	51
45	N		HG	CI	68	1.25x3.82	4	CS	9½	58	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcder	18 mm	Str	1¾	1320	24 1/16	29½	60 1/32	52
45	N		HG	CI	68	1.25x3.82	4	CS	9½	58	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcder	18 mm	Str	1¾	1320	24 1/16	29½	60 1/32	53
45	E	DC	HG	CI	88	1.25x3.81	4	CS	11	66	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcde	18 mm	Zen	1¾	950	25¾	33 1/32	47 3/32	54
30	E	JM	HG	AI	88	1.25x3.81	5	AS	11	78	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcdeg	14 mm	Zen	1¾	1195	27 7/8	38 1/32	49 3/32	55
30	E	DC	HG	CI	94	1.62x4.00	4	AS	13¼	139	CS	N	3.00x2.25	4	3.00x2.25	3.00x3.69	abcde	18 mm	Zen	1¾	1525	28¾	43 3/32	53 1/32	56
30	E	DC	HG	AI	127	1.75x4.15	5	AS	12½	164	CS	N	3.24x2.12	7	3.50x3.00	3.50x3.00	abcdeg	18 mm	Zen	1¾	2150	31 1/32	49 5/16	57½	57
30	E	DC	HG	CI	196	2.00x5.12	4	AS	15¼	239	CS	Y	3.50x3.31	4	3.50x4.75	3.50x4.75	abcde	⅞–18	Zen	2	3700	28 5/8	43	74 7/8	58
30	E	DC	HG	CI	199	2.00x5.33	4	AS	15¼	239	CS	Y	3.50x3.31	4	3.50x4.75	3.50x4.75	abcde	⅞–18	Zen	2	3700	28 5/8	43	74 7/8	59
45	E	DC	HG	Ala	263	2.75x5.53	5	CS	17¾	430	CS	Y	3.75x3.50	7	3.75x2.31	3.75x3.48	abcdeg	18 mm	Zen(2)	2	9000	48	68 1/16	86 13/32	60
45	E	DC	HG	Ala	263	2.75x5.53	5	CS	17¾	430	CS	Y	3.75x3.50	7	3.75x2.31	3.75x3.48	abcdeg	18 mm	Zen(2)	2	9000	48	68 1/16	86 13/32	61
45	N		HG	CI	37	1.09x3.31	3	1045	10¼	50	1045	N	1.87x2.12	3	2.25x3.00	2.18x2.87	Splash	⅞–18	Zen	1	720	22	28	53	62
45	E	SA	HG	AI	132	1.50x5.62	5	3135	14	147	3140	Y	3.00x2.37	5	3.75x4.12	3.75x4.50	abce	⅞–18	Zen	2½	2500	24	46	78	63
45	E	SA	HG	AI	154	1.68x6.25	5	3135	14	147	3140	Y	3.00x2.37	5	3.75x4.12	3.75x4.50	abe	⅞–18	Zen	2½	2700	24	46	78	64
45	E	SA	HG	AI	312	2.25x7.62	5	3135	21	186	3140	Y	4.25x4.00	5	5.00x7.00	5.00x7.00	abce	14 mm	Zen(2)	2½	7000	47	54	132	65
45	E	SA	HG	AI	132	1.50x5.62	5	3135	14	147	3140	Y	3.00x2.37	7	3.75x4.12	3.75x4.50	abe	⅞–18	Zen(2)	2	3000	24	46	94	66
45	E	SA	HG	AI	154	1.68x6.25	5	3135	14	147	3140	Y	3.00x2.37	7	3.75x4.12	3.75x4.50	abe	⅞–18	Zen(2)	2	3200	24	46	94	67
45	E	SA	HG	AI	312	2.25x7.62	5	3135	21	186	3140	Y	4.25x4.00	7	5.00x7.00	5.00x7.00	abce	14 mm	Zen(3)	2½	11600	47	54	160	68
45	E	SA	HG	AI	132	1.50x5.62	5	3135	14	147	3140	Y	3.00x2.37	9	3.75x4.12	3.75x4.50	abe	⅞–18	Zen(2)	2½	4000	24	46	111	69
45	E	SA	HG	AI	154	1.68x6.25	5	3135	14	147	3140	Y	3.00x2.37	9	3.75x4.12	3.75x4.50	abe	⅞–18	Zen(2)	2½	4300	24	46	111	70
45	E	SA	HG	AI	312	2.25x7.62	5	3135	21	186	3140	Y	4.25x4.00	9	5.00x7.00	5.00x7.00	abce	14 mm	Zen(4)	2½	15000	47	54	188	71
30	N		HG	CI	35	.864x3.15	3	DFS	6	31	DFS	Y	2.06x1.25	4	2.50x1.44	2.50x1.87	abcg	10 mm	Car	1¼					72
30	N		HG	CI	38	.864x3.15	3	DFS	6	31	DFS	Y	2.12x1.37	4	2.50x1.59	2.50x1.87	abcg	10 mm	Car	1¼					73
30	N		HG	AI	21	.750x2.87	3	3140	6 5/8	22	1045	N	1.75x1.12	3	1.98x1.62	2.70x2.09	abr	14 mm	Zen	1¼	456*	24 1/16	23 1/16	31 11/16	74
30	N		HG	AI	25	.875x2.87	3	1035	7	29	1045	N	1.98x1.12	7	2.49x1.93	2.49x1.37	abr**	14 mm	Zen	1⅜	626*	24 1/16	25½	40	75
30	N		HG	AI	36	1.00x3.50	3	1040	8	40	1045	N	1.98x1.50	7	2.49x2.12	2.49x1.37	abr	14 mm	Zen	1¾	850*	26 1/16	27 3/32	46 1/16	76
30	N		HG	AI	44	1.12x3.68	4	3140	8 7/16	52	1045	Y	2.24x1.50	7	2.62x2.75	2.62x1.75	aber	14 mm	Zen	2	1232*	26 1/16	29 1/16	53 1/16	77
45	E	CNT	HG	CI	33	.859x2.75	4	T-1335	7 1/16	31	1040	Y	2.08x1.25	4	2.50x1.44	2.50x1.87	abce	18 mm	Zen	1¼	665				78
45	E	CNT	HG	CI	37	.859x2.87	4	T-1335	7 1/8	34	1040	Y	2.12x1.37	4	2.50x1.59	2.50x1.87	abce	18 mm	Zen	1½	785				79
45	E	CNT	HG	AI	23	.859x2.75	4	T-1335	9	36	1040	Y	2.18x1.37	5	2.70x1.65	2.70x2.09	abce	18 mm	Zen(2)	1½	990				80
45	E	CI	HG	CI	85	1.31x4.06	4	1045	10½	167	1045	N	2.37x2.12	3	2.37x2.31	2.37x2.75	abcdeg	⅞–18	Zen	1¼	825	25¾	37	41¼	81
45	E	CI	HG	CI	142	1.50x4.31	4	1045	11¾	139	1045	N	2.75x2.50	3	3.00x2.87	3.00x3.62	abcdeg	⅞–18	Zen	1½	1350	28¾	43	47¾	82

(For abbreviations see pages 100-101)

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Climax N4B	Ind	4-5¾x6½	102-1200	90-1200	675.0	4.30	450-700 (EA)	N	In	I	Sil	2.50	2.50	2.25	2.25	.500	.500	.562	.562
2	Climax R4I	Ind	4-6x7	123-1200	112-1200	791.6	4.70	525-750 (EA)	N	Se	I	Sil	2.50	2.50	2.25	2.25	.500	.500	.562	.562
3	Climax R6U	Ind	6-6x7	142-1200	126-1200	1187.4	4.40	700-650 (BE)	N	Se	L	Sil	2.75	2.75	2.50	2.50	.375	.375	.625	.625
4	Climax R6I	Ind	6-6x7	183-1200	165-1200	1187.4	4.70	802-700 (EA)	N	Se	I	CNS	2.50	2.50	2.25	2.25	.500	.500	.562	.562
5	Climax R8I	Ind	8-6x7	245-1200	221-1200	1583.2	4.70	1085-750 (EA)	N	Se	I	Sil	2.50	2.50	2.25	2.25	.500	.500	.562	.562
6	Continental Y-4069	C,Tr,Ind	4-2½x3½	28-3500	.....	68.7	6.15	52-2000 (BE)	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.313
7	Continental Y-4091	C,Tr,Ind	4-2⅞x3½	37-3500	.....	90.9	6.00	70-1800 (BE)	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.313
8	Continental Y-4112	C,Tr,Ind	4-3⅛x3½	46-3400	.....	111.7	6.00	87-1800 (BE)	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.313
9	Continental F-4124	C,T,Tr,Ind	4-3x4⅜	48-3400	.....	123.7	6.00	94-1800 (BE)	N	In	L	Sil	1.51	1.32	1.37	1.18	.281	.280	.341	.339
10	Continental F-4140	C,T,Tr,Ind	4-3⅛x4⅜	51-3400	.....	139.6	6.00	106-1600 (BE)	N	In	L	Sil	1.51	1.32	1.37	1.18	.281	.280	.341	.339
11	Continental F-4162	C,T,Tr,Ind	4-3⅛x4⅜	58-3200	.....	162.4	5.75	124-1600 (BE)	N	In	L	Sil	1.51	1.32	1.37	1.18	.281	.280	.341	.339
12	Continental F-6186	C,T,Tr,Ind	6-3x4⅜	64-3400	.....	185.6	6.40	138-1400 (BE)	N	In	L	XCR	1.51	1.32	1.37	1.18	.281	.281	.341	.339
13	Continental F-6209	C,T,Tr,Ind	6-3⅛x4⅜	71-3200	.....	209.5	5.75	155-1200 (BE)	N	In	L	Sil	1.51	1.32	1.37	1.18	.284	.284	.341	.339
14	Continental F-6226	C,T,Tr,Ind	6-3⅛x4⅜	76-3000	.....	226.0	6.00	170-1200 (BE)	N	In	L	XCR	1.51	1.32	1.37	1.18	.281	.281	.341	.339
15	Continental A-6244	C,T,B,Ind	6-3⅛x4⅜	85-3000	.....	243.6	6.02	182-1200 (BE)	N	In	L	St	1.57	1.32	1.43	1.18	.291	.291	.373	.372
16	Continental M-6271	T,B,Tr,Ind	6-3⅝x4⅜	92-3000	.....	270.9	5.75	207-1200 (BE)	N	In	L	Sil	1.76	1.51	1.62	1.37	.354	.354	.404	.402
17	Continental M-6290	T,B,Tr,Ind	6-3¾x4⅜	99-3000	.....	289.9	5.70	225-1200 (BE)	N	In	L	Sil	1.76	1.51	1.62	1.37	.354	.354	.404	.402
18	Continental M-6330	T,B,Tr,Ind	6-4x4⅜	107-2800	.....	329.8	5.50	258-1000 (BE)	N	In	L	Sil	1.76	1.51	1.62	1.37	.354	.354	.404	.402
19	Continental B-6371	T,B,Ind	6-4⅛x4⅝	109-2600	.....	370.9	5.74	280-1000 (BE)	N	In	L	St	1.89	1.64	1.75	1.50	.354	.354	.435	.432
20	Continental B-6405	T,B,Ind	6-4⅛x4⅝	115-2600	.....	405.3	5.74	314-1000 (BE)	N	In	L	St	1.89	1.64	1.75	1.50	.354	.354	.435	.432
21	Continental 21R	T,B,Ind	6-4⅝x4¾	133-2400	.....	428.4	4.63	323-1000 (BE)	N	In	I	AUS	2.06	1.87	1.81	1.62	.420	.420	.435	.433
22	Continental 22R	T,B,Ind	6-4½x5¼	141-2400	.....	501.0	4.50	375-1000 (BE)	N	In	I	AUS	2.06	1.87	1.81	1.62	.420	.420	.435	.433
23	Dodge T-112, T-114	T	6-3¼x4⅜	95-3600	80-3400	217.7	6.80	172-1200 (BE)	N	In	L	Sil	1.53	1.40	1.37	1.28	.379	.379	.340	.340
24	Dodge T-116	T	6-3¼x4⅝	105-3600	85-3400	230.2	6.80	184-1300 (BE)	N	In	L	Sil	1.53	1.40	1.37	1.28	.379	.379	.340	.340
25	Dodge T-118, T-128	T	6-3⅛x4¼	115-3800	95-3600	236.6	6.80	190-1500 (BE)	N	In	L	Sil	1.68	1.53	1.50	1.37	.379	.379	.340	.340
26	Dodge T-120, T-130	T	6-3⅛x4½	120-3800	100-3600	250.6	6.80	200-1500 (BE)	N	In	L	Sil	1.68	1.53	1.50	1.37	.379	.379	.340	.340
27	Dodge T-124	T	6-3¾x5	110-3200	98-3200	331.3	5.85	240-800 (BE)	N	In	L	Sil	1.93	1.75	1.78	1.59	.323	.323	.371	.371
28	Ford 40	T	4-3⅛x3¾	.....	40-3200†	119.5	6.00	84-1600 (BE)	D	In	L	CNS	1.51	1.28	.....	.....	.292	.292	.311	.310
29	Ford 90HP	C, T	6-3.3x4.4	.....	90-3400†	225.8	6.70	180-1400 (BE)	...	In	L	CNS	1.65	1.51	.....	.....	.292	.292	.311	.310
30	Ford 90	C, T, B	8-3⅛x3¾	.....	90-3800†	221.0	(‡)	(5) (BE)	D	In	L	CNS	1.51	1.51	.....	.....	.292	.292	.311	.310
31	Ford 100	C, T, B	8-3⅛x3¾	.....	100-3800†	239.0	6.40	176-2000 (BE)	...	In	L	CNS	1.51	1.51	.....	.....	.292	.292	.311	.310
32	Franklin 4CHO-150	T, Tr	4-3⅝x3⅝	.....	43-3000	150.0	5.50	100-1200 (EA)	N	Se	I	CNS	1.66	1.51	1.50	1.40	.375	.375	.375	.375
33	Franklin 4CHO-176	T, Ind	4-4x3½	60-2500	55-2500	176.0	6.00	132-1600 (EA)	N	Se	I	CNS	1.93	1.50	1.68	1.34	.375	.375	.375	.375
34	Franklin 6AH-377	T,B,Tr,Ind	6-4x5	.....	104-2500	377.0	4.90	250-1500 (EA)	....	Se	I	CNS	1.75	1.43	1.62	1.31	.375	.375	.375	.375
35	Franklin 6A-377	T,B,Tr,Ind	6-4x5	.....	104-2500	377.0	4.90	250-1500 (EA)	....	Se	I	CNS	1.75	1.43	1.62	1.31	.375	.375	.375	.375
36	Franklin 6AH-400	T,B,Tr,Ind	6-4⅛x5	.....	110-2500	400.0	5.00	268-1500 (EA)	....	Se	I	CNS	1.75	1.43	1.62	1.31	.375	.375	.375	.375
37	Franklin 6A-400	T,B,Tr,Ind	6-4⅛x5	.....	110-2500	400.0	5.00	268-1500 (EA)	....	Se	I	CNS	1.75	1.43	1.62	1.31	.375	.375	.375	.375
38	G. M. C. 228	T, B	6-3⅛x3⅛	95-3200	85-3000	228.0	6.75	178-1000 (EA)	N	In	I	Sil	1.64	1.47	1.25	1.16	.289	.307	.343	.343
39	G. M. C. 248	T, B	6-3⅛x3⅛	100-3100	89-3000	248.5	6.75	195-1000 (EA)	N	In	I	Sil	1.64	1.47	1.25	1.16	.289	.307	.343	.343
40	G. M. C. 270	T	6-3⅜x4	104-3000	95-3000	270.0	6.75	216-1000 (EA)	N	In	I	Sil	1.64	1.47	1.25	1.16	.289	.307	.343	.343
41	G. M. C. 278	T	6-3⅝x4½	100-2800	86-2800	278.6	6.00	213-1000 (EA)	N	Se	I	CHS	1.81	1.56	1.44	1.37	.333	.333	.375	.375
42	G. M. C. 308	T, B	6-3⅛x4½	111-2800	87-2800	308.2	6.00	239-800 (EA)	N	Se	I	CHS	1.81	1.46	1.44	1.37	.333	.333	.375	.375
43	G. M. C. 361	T	6-4⅛x4½	122-2800	106-2500	360.8	6.00	265-800 (EA)	N	Se	I	CHS	1.94	1.72	1.50	1.50	.406	.406	.375	.375
44	G. M. C. 426	T	6-4¼x5	145-2600	127-2400	425.6	6.00	322-1000 (EA)	N	Se	I	CHS	1.94	1.72	1.50	1.50	.406	.406	.375	.375
45	G. M. C. 451	T, B	6-4⅜x5	149-2600	130-2400	450.9	6.00	350-1000 (EA)	N	Se	I	CHS	1.94	1.72	1.50	1.50	.406	.406	.375	.375
46	G. M. C. 477	T, B	6-4½x5	153-2600	135-2400	477.1	6.00	365-1000 (EA)	N	Se	I	CHS	1.94	1.72	1.50	1.50	.406	.406	.375	.375
47	G. M. C. 529	B	6-4⅝x5¼	158-2500	144-2300	529.2	5.50	387-1000 (EA)	N	Se	I	CHS	2.12	1.94	1.66	1.62	.406	.406	.437	.437
48	G. M. C. 707	B	6-5x6	175-2200	160-2100	706.8	4.83	555-1000 (EA)	D	Se	I	CHS	2.44	2.17	1.75	1.75	.413	.413	.437	.500
49	Gray Light Four	M	4-2½x3½	.....	16-1800	69.0	5.50	.....	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.312
50	Gray Sea Scout	M	4-2⅞x3½	.....	37-3000	91.0	6.50	.....	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.312
51	Gray Phantom 4-45	M	4-2⅞x3½	.....	45-3600	91.0	7.50	.....	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.312
52	Gray Racing-91	M	4-2⅞x3½	.....	65-5000	91.0	9.20	.....	N	In	L	Sil	1.32	1.23	1.16	1.07	.284	.284	.314	.312
53	Gray Racing-100	M	4-2½x3⅝	.....	75-5000	98.0	10.00	.....	N	In	L	Sil	1.32	1.23	1.16	1.07	.284	.284	.314	.312
54	Gray Four-22	M	4-3⅛x3½	.....	45-3000	112.0	6.50	.....	N	In	L	Sil	1.20	1.01	1.06	.875	.291	.292	.314	.312
55	Gray Four-40	M	4-3⅛x4⅜	.....	55-3000	140.0	5.50	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.331	.331	.340	.338
56	Gray Phantom 4-62	M	4-3⅛x4⅜	.....	62-3600	140.0	7.20	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.331	.331	.340	.338
57	Gray Four-52	M	4-3⅛x4⅜	.....	57-2600	162.0	6.00	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.331	.331	.340	.338
58	Gray Phantom 4-75	M	4-3⅛x4⅜	.....	75-3600	162.0	7.00	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.331	.331	.340	.338
59	Gray Phantom 4-86	M	4-3⅛x4⅜	.....	86-3600	162.0	8.00	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.331	.331	.340	.338
60	Gray Six-51	M	6-3¼x4	.....	73-3200	199.0	6.00	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.284	.284	.314	.312
61	Gray Six-71	M	6-3¼x4⅜	.....	84-3000	218.0	6.50	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.284	.284	.314	.312
62	Gray Phantom 6-90	M	6-3¼x4⅜	.....	90-3600	218.0	7.00	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.284	.284	.314	.312
63	Gray Phantom 6-103	M	6-3¼x4⅜	.....	103-3600	218.0	7.00	.....	N	In	L	Sil	1.51	1.32	1.37	1.18	.284	.284	.314	.312
64	Gray Six-91	M	6-3⅛x4⅜	.....	100-3000	244.0	7.00	.....	N	In	L	Sil	1.70	1.43	1.56	1.31	.375	.375	.372	.370
65	Gray Phantom 6-125	M	6-3⅛x4⅜	.....	125-3600	244.0	7.00	.....	N	In	L	Sil	1.70	1.43	1.56	1.31	.375	.375	.372	.370
66	Gray Fireball 6-140	M	6-3⅛x4⅜	.....	140-4000	244.0	7.50	.....	N	In	L	Sil	1.57	1.42	1.43	1.31	.311	.311	.339	.338
67	Gray Fireball 6-150	M	6-3⅛x4⅜	.....	150-4000	244.0	7.50	.....	N	In	L	Sil	1.57	1.42	1.43	1.31	.311	.311	.339	.338
68	Gray Fireball 6-160	M	6-3⅛x4⅜	.....	160-4000	244.0	7.50	.....	N	In	L	Sil	1.57	1.42	1.43	1.31	.311	.311	.339	.338
69	Gray Racing Fireball	M	6-3.30x4⅜	.....	180-5000	225.0	10.00	.....	N	In	L	Sil	1.71	1.58	1.56	1.43	.360	.360	.340	.371
70	Gray Six-101	M	6-3¾x4⅜	.....	110-3200	290.0	6.50	.....	N	In	L	Sil	1.78	1.51	1.62	1.37	.354	.354	.404	.402
71	Gray Six-121	M	6-4x4⅜	.....	124-3200	330.0	6.50	.....	N	In	L	Sil	1.76	1.51	1.62	1.37	.354	.354	.404	.402
72	Gray Super Six	M	6-4x4⅜	.....	145-3200	330.0	6.50	.....	N	In	L	Sil	1.76	1.51	1.62	1.37	.354	.354	.404	.402
73	Gray Six-105	M	6-4¼x4½	.....	101-2400	383.0	5.50	.....	N	In	L	Sil	2.06	1.87	1.81	1.62	.406	.406	.434	.432
74	Gray Eight-160	M	8-3⅝x4½	.....	160-3200	372.0	6.25	.....	N	In	L	Sil	1.56	1.42	1.50	1.37	.372	.372	.339	.338
75	Gray Phantom 8-175	M	8-3⅝x4½	.....	175-3600	372.0	6.62	.....	N	In	L	Sil	1.56	1.42	1.50	1.37	.372	.372	.339	.338
76	Hall-Scott 165	T, B, Ind	4-4¼x5½	72-2000	60-2000	312.0	4.80	230-1000 (BE)	N	Se	I	Sil	2.13	2.25	1.93	1.89	.362	.362	.435	.435
77	Hall-Scott Fisher Jr. 178-179	M	4-4¼x5½	.....	75-1800	312.0	4.00	.....	N	Se	I	Sil	2.13	2.13	1.93	1.93	.362	.362	.435	.435
78	Hall-Scott 167	T, B, Ind	4-4¾x5½	80-2000	65-1800	390.0	4.84	300-1000 (BE)	N	Se	I	Sil	2.25	2.38	2.06	2.03	.362	.362	.435	.435
79	Hall-Scott 147	T, B, FA	6-4x5	107-2200	93-2200	377.0	4.90	290-1000 (BE)	N	Se	I	Sil	2.13	2.13	1.93	1.93	.362	.362	.435	.435
80	Hall-Scott 95	T, B	6-4x5	115-2800	95-2600	377.0	5.40	290-1000 (BE)	W	In	I	AESW	2.03	1.91	1.87	1.65	.421	.421	.435	.435
81	Hall-Scott 160-1	T, B, FA	6-4¼x5½	118-2200	100-2200	468.0	4.90	310-1200 (BE)	N	Se	I	AESW	2.13	2.13	1.93	1.93	.362	.362	.435	.435
82	Hall-Scott Navigator I, 116-117	M	6-4¼x5½	.....	103-1800	468.0	4.70	.....	N	Se	I	AESW	2.13	2.13	1.93	1.93	.362	.362	.435	.435
83	Hall-Scott 130	T, B, FA	6-4¼x5	130-3000	107-2800	425.6	4.96	288-1000 (BE)	W	In	I	AESW	2.28	2.16	2.12	1.90	421	421	.435	.435
84	Hall-Scott 135	T, B, FA	6-4½x5	145-2800	122-2800	477.1	5.50	340-1000 (BE)	W	In	I	AESW	2.28	2.16	2.12	1.90	421	421	.435	.435
85	Hall-Scott 180	T, B, FA	6-5x6	200-2200	170-2100	706.8	5.16	500-1400 (BE)	W	In	I	AESW	2.62	2.37	2.37	2.00	.482	.482	.497	.528
86	Hall-Scott 175-1	T, B, FA	6-5x6	204-2200	173-2000	706.8	5.00	525-1000 (BE)	N	Se	I	AESW	2.50	2.50	2.31	2.31	.406	.343	.435	.435
87	Hall-Scott 176	T, B, FA	6-5¼x6	222-2200	191-1800	779.3	5.00	580-1100 (BE)	N	Se	I	AESW	2.50	2.50	2.31	2.31	.406	.343	.435	.435
88	Hall-Scott 190	T,B,FA,RC	6-5¼x6	240-2200	200-2000	779.3	5.00	570-1200 (BE)	W	In	I	AESW	2.62	2.37	2.37	2.00	.482	.482	.497	.528
89	Hall-Scott 177	T,B,FA,Ind	6-5½x6	243-2200	203-1800	855.2	5.00	710-1100 (BE)	N	Se	I	AESW	2.50	2.50	2.31	2.31	.406	.343	.435	.435
90	Hall-Scott 400	T	6-5¾x7	286-1800	260-1800	1090.0	5.70	865-1200 (BE)	N	Se	I	2112°	2.87	2.75	2.62	2.50	.482	.482	.497	.528
91	Hall-Scott Invader 186-87	M	6-5½x7	.....	252-2100	997.8	5.09	.....	N	In	I	AESW	2.87	2.87	2.62	2.62	.482	.482	.497	.528
92	Hall-Scott Invader 168-69	M	6-5½x7	.....	275-2100	997.8	5.09	.....	N	In	I	AESW	2.87	2.87	2.62	2.62	.482	.482	.497	.528
93	Hall-Scott Defender 1268-69	M	12-5½x7	.....	575-2100	1996.0	5.80	.....	N	Se	I	AESW	2.87	2.75	2.62	2.50	.482	.482	.497	.528
94	Hall-Scott Defender 2286-87	M	12-5¾x7	.....	605-2100	2181.0	7.00	.....	N	Se	I	AESW	2.87	2.75	2.62	2.50	.482	.482	.497	.528
95	Hall-Scott Defender 2268-69	M	12-5¾x7	.....	630-2100	2181.0	7.00	.....	N	Se	I	AESW	2.87	2.75	2.62	2.50	.482	.482	.497	.528
96	Hall-Scott Defender ‡3368-69	M	12-5¾x7	.....	900-2100	2181.0	6.00	.....	N	Se	I	AESW	2.87	2.75	2.62	2.50	.482	.482	.497	.528

(For abbreviations see pages 100-101)

Engines—*Continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT									CARBURETOR			OVERALL DIMENSIONS (In.)			
	Seats													MAIN BEARINGS												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Spark Plug—Thread Size	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Line Number
45	E	CI	HG	CI	189	1.48x5.25	4	1035	14	194	1045	N	3.00x3.00	3	3.25x3.50	3.25x4.75	abceg	7/8–18	Zen	1 3/4	1800	30 1/2	46	53 1/4	1
45	E	CI	HG	Al	153	1.49x5.37	4	3135	16	244	4140	Y	3.00x3.50	3	3.25x3.81	3.25x4.50	abceg	7/8–18	Zen	2	2300	31 3/16	49 1/2	57 3/8	2
45	N	.....	HG	CI	210	1.49x5.37	4	3135	16	244	4140	Y	3.00x3.50	4	3.25x3.81	3.25x4.50	abce	7/8–18	Zen	2	2660	29 1/16	46 3/16	73 1/16	3
45	E	CI	HG	Al	153	1.49x5.37	4	3135	16	244	4140	Y	3.00x3.50	4	3.25x3.81	3.25x4.50	abceg	7/8–18	Zen(2)	1 3/4	3200	29 1/16	51 5/8	73 1/16	4
45	E	CI	HG	Al	153	1.49x5.37	4	3135	16	244	4140	N	3.37x3.18	5	4.00x3.62	4.00x4.50	abceg	7/8–18	Zen(2)	2	4500	35 7/16	56 1/16	97 1/8	5
(h)	N	.....	HG	CT	.....	.703x2.06	3	1030	5 3/4	.....	1045	N	1.50x1.18	3	1.75x1.37	1.75x1.78	abcet	18 mm	.....	7/8	298	26	22 1/16	25 1/2	6
(h)	N	.....	HG	CT	.....	.703x2.44	3	1030	5 3/4	.....	1045	N	1.50x1.18	3	1.75x1.37	1.75x1.78	abcet	18 mm	.....	1	305	26	22 1/16	25 1/2	7
(h)	N	.....	HG	CT	.....	.703x2.75	3	1030	5 3/4	.....	1045	N	1.50x1.18	3	1.75x1.28	1.75x1.65	abcet	18 mm	.....	1	315	26	22 1/16	25 1/2	8
(h)	E	WA	HG	CT	.....	.859x2.50	4	1030	7	.....	1045	N	1.93x1.31	3	2.25x1.18	2.25x1.89	abcet	18 mm	.....	1 1/4	400	26	26 1/16	29 7/16	9
(h)	E	WA	HG	CT	.....	.859x2.68	4	1030	7	.....	1045	N	1.93x1.31	3	2.25x1.18	2.25x1.89	abcet	18 mm	.....	1 1/4	405	26	26 1/16	29 7/16	10
(h)	E	WA	HG	CT	.....	.859x2.87	4	1030	7	.....	1045	N	1.93x1.31	3	2.25x1.18	2.25x1.89	abcet	18 mm	.....	1 1/4	410	26	26 1/16	29 7/16	11
(h)	E	WA	Ch	CT	.....	.859x2.50	4	1030	7	.....	1045	Y	1.93x1.31	4	2.25x1.18	2.25x1.81	abcet	18 mm	.....	1 1/4	481	26	27 1/4	36 1/16	12
(h)	E	WA	Ch	CT	.....	.859x2.62	4	1030	7	.....	1045	Y	1.93x1.31	4	2.25x1.21	2.25x1.81	abcet	18 mm	.....	1 1/4	506	26	27 1/4	36 1/16	13
(h)	E	WA	Ch	CT	.....	.859x2.62	4	1030	7	.....	1045	Y	2.06x1.31	4	2.37x1.28	2.37x1.73	abcet	18 mm	.....	1 1/4	512	26	27 1/4	36 1/16	14
(k)	E	Tun	HG	Al	.....	.859x2.87	5	1035	8 3/8	.....	1045	Y	2.12x1.37	4	2.37x1.43	2.37x2.06	abcet	18 mm	.....	1 1/4	548	26	28 1/16	38 1/16	15
(h)	E	WA	HG	CT	.....	1.10x3.06	4	1035	8 5/8	.....	1045	Y	2.25x1.56	7	2.62x1.56	2.62x2.18	abcet	18 mm	.....	1 1/2	750	25 3/4	29 1/2	42	16
(h)	E	WA	HG	CT	.....	1.10x3.18	4	1035	8 3/8	.....	1045	Y	2.25x1.56	7	2.62x1.56	2.62x2.18	abcet	18 mm	.....	1 1/2	760	25 3/4	29 1/2	42	17
(h)	E	WA	HG	CT	.....	1.10x3.43	4	1035	8 3/8	.....	1045	Y	2.25x1.56	7	2.62x1.56	2.62x2.18	abcet	18 mm	.....	1 1/2	770	25 3/4	29 1/2	42	18
(k)	E	HS	HG	Al	.....	1.25x3.36	5	1035	8 3/8	.....	1045	Y	2.50x1.69	7	2.87x1.65	2.87x2.72	abcet	18 mm	.....	1 3/4	855	26	29 1/4	43 11/16	19
(k)	E	HS	HG	Al	.....	1.25x3.63	5	1035	8 3/8	.....	1045	Y	2.50x1.69	7	2.87x1.65	2.87x2.72	abcet	18 mm	.....	1 3/4	870	26	29 1/4	43 11/16	20
30	E	HS	Ch	Al	.....	1.25x3.68	4	1035	9 1/2	.....	4140	N	2.50x1.81	7	2.75x1.75	2.75x2.81	abceg	18 mm	.....	1 3/4	1318	25 3/4	36 1/16	46 11/16	21
30	E	HS	Ch	Al	.....	1.50x3.71	4	1035	10 1/16	.....	4140	Y	2.75x1.81	7	2.75x1.75	2.75x2.81	abceg	18 mm	.....	2	1430	25 3/4	39 5/16	46 11/16	22
45	E	SA	Ch	.....	.....	.859x2.75	4	MS	7 1/16	31	1040	Y	2.06x1.00	4	2.50x1.17	2.50x1.59	abce	14 mm	Car	1 1/2	500	23 3/4	31 1/16	37 1/16	23
45	E	SA	Ch	.....	.....	.859x2.75	4	MS	7 1/16	.....	1040	Y	2.06x1.00	4	2.50x1.17	2.50x1.50	abce	14 mm	Str	1 1/2	535	23 3/4	31 1/16	37 1/16	24
45	E	SA	Ch	.....	.....	.859x2.87	4	MS	8	.....	1040	Y	2.12x1.09	4	2.50x1.15	2.50x1.58	abce	14 mm	Car	1 1/2	580	23 3/4	31 1/2	39 1/16	25
45	E	SA	Ch	.....	.....	.859x2.87	4	MS	7 7/8	35	1040	Y	2.12x1.09	4	2.50x1.15	2.50x1.58	abce	14 mm	Car	1 1/2	600	23 3/4	31 1/2	39 1/16	26
45	E	SA	Ch	.....	.....	1.12x3.25	4	MS	10 7/16	56	1040	Y	2.31x1.43	7	3.00x1.87	3.00x3.04	abce	14 mm	Str	1 1/2	1050	24 3/4	31 1/2	49 1/16	27
45	Bo	CM	HG	CAS	20	.750x .	4	MS	6 1/8	20	CAS	Y	2.10x1.12	3	2.25x1.60	2.25x1.60	abc	14 mm	Own	.78	352	.....	.....	.....	23
45	Bo	CM	HG	CAS	21	.850x2.92	3	MS	7 1/16	26	CAS	Y	2.23x1.40	4	2.50x1.15	2.50x1.50	abc	14 mm	Own	1.19	532	.....	.....	.....	29
45	Bo	CM	HG	CAS	18	.750x .	4	MS	7	17	CAS	Y	2.00x1.75	3	2.50x1.50	2.50x2.00	abc	14 mm	Own	.94	547	.....	.....	.....	30
45	Bo	CM	HG	CAS	20	.750x .	4	MS	7	17	CAS	Y	2.14x1.75	3	2.50x1.50	2.50x2.00	abc	14 mm	Own	.94	554	.....	.....	.....	31
30	.....	.....	HG	Al	18	.859x3.12	5	AS	7	74	CS	Y	1.93x1.00	3	2.25x1.25	2.25x1.50	ace	14 mm	Op	1 1/4	315	34	18 1/2	18	32
(h)	Bo	CNM	HG	Al	.....	.890x3.43	4	3140	6	27	1045	Y	1.93x1.15	3	2.25x1.21	2.25x1.62	abeg	14 mm	Zen	.....	.....	.....	.....	.....	33
30	.....	.....	HG	Al	36	1.25x3.12	5	AS	9 1/2	54	CS	.....	2.37x1.75	7	2.70x2.25	2.70x2.87	abcdefg	18 mm	Zen	1 1/2	1247	40 1/8	27 3/4	44	34
30	.....	.....	HG	Al	36	1.25x3.12	5	AS	9 1/2	54	CS	.....	2.37x1.75	7	2.70x2.25	2.70x2.87	abcdeg	18 mm	Zen	1 1/2	1087	24 1/2	37 1/16	44	35
30	.....	.....	HG	Al	38	1.25x3.12	5	AS	9 1/2	54	CS	.....	2.37x1.75	7	2.70x2.25	2.70x2.87	abcdefg	18 mm	Zen	1 1/2	1247	40 1/8	27 3/4	44	36
30	.....	.....	HG	Al	38	1.25x3.12	5	AS	9 1/2	54	CS	.....	2.37x1.75	7	2.70x2.25	2.70x2.87	abcdeg	18 mm	Zen	1 1/2	1087	24 1/2	37 1/16	44	37
30	E	WR	HG	Al	33	.990x3.08	4	1040-A	7	33	1050	Y	2.31x1.23	4	2.69x1.19	2.78x1.47	abcdeg	14 mm	Zen	1 5/8	.....	21 13/16	26 7/16	40 3/4	38
30	E	WR	HG	Al	34	.990x3.25	4	1040-A	7	33	1050	Y	2.31x1.23	4	2.69x1.19	2.78x1.47	abcdeg	14 mm	Zen	1 5/8	.....	21 13/16	26 7/16	40 3/4	39
30	E	WR	HG	Al	34	.990x3.25	4	1040-A	7	33	1050	Y	2.31x1.23	4	2.69x1.19	2.78x1.47	abcdeg	14 mm	Zen	1 5/8	.....	21 13/16	26 7/16	40 3/4	40
45	E	WR	HG	Al	37	1.00x3.18	4	1040-A	9 3/4	51	1050	Y	2.37x1.34	7	2.75x2.09	2.75x2.09	abcdeg	14 mm	Zen	1 5/8	.....	25 1/4	31 13/16	45 7/16	41
45	E	WR	HG	Al	40	1.00x3.36	4	1040-A	9 3/4	51	1050	Y	2.37x1.34	7	2.75x2.09	2.75x2.09	abcdeg	14 mm	Zen	1 5/8	.....	25 1/4	31 13/16	45 7/16	42
(h)	E	St	HG	Al	59	1.25x3.59	4	1040-A	10 3/4	73	1050	Y	2.62x1.47	7	3.00x2.22	3.00x2.22	abcdeg	14 mm	Zen	1 1/2	.....	22 1/2	35 7/16	47 11/16	43
(h)	E	St	HG	Al	60	1.25x3.71	4	1040-A	10 3/4	73	1050	Y	2.62x1.47	7	3.00x2.22	3.00x2.22	abcdeg	14 mm	Zen	1 1/2	.....	22 1/2	35 7/16	47 11/16	44
(h)	E	St	HG	Al	63	1.25x3.84	4	1040-A	10 3/4	73	1050	Y	2.62x1.47	7	3.00x2.22	3.00x2.22	abcdeg	14 mm	Zen	1 5/8	.....	22 1/2	35 7/16	47 11/16	45
(h)	E	St	HG	Al	64	1.25x3.96	4	1040-A	10 3/4	.....	1050	Y	2.62x1.75	7	3.00x2.22	3.00x2.22	abcdeg	14 mm	Zen	1 3/4	.....	22 1/2	35 7/16	47 11/16	46
30	E	St	HG	Al	66	1.25x4.06	4	1040-A	10 1/2	82	1050	Y	2.62x1.72	7	3.50x2.50	3.50x2.50	abcdeg	14 mm	Zen	2	.....	27	47	50	47
30	E	St	HG	Al	77	1.37x4.47	5	4140-A	12 1/16	77	4140	Y	2.75x2.06	7	3.00x1.72	3.00x2.50	abcdeg	18 mm	Str	2	.....	29 1/2	50	62 1/2	48
(h)	N	.....	HG	CI	16	.703x2.06	3	CS	5 3/4	17	1045	N	1.50x1.18	3	1.75x1.78	1.75x1.37	abce	14 mm	Zen	3/4	330	16 1/4	17 1/2	30	49
(h)	N	.....	HG	CI	21	.703x2.43	3	CS	5 3/4	17	1045	N	1.50x1.18	3	1.75x1.78	1.75x1.37	abce	14 mm	Zen	1	375	15	18 5/8	30 5/8	50
(h)	N	.....	HG	Al	16	.703x2.43	3	CS	5 3/4	17	1045	N	1.50x1.18	3	1.75x1.78	1.75x1.37	abce	14 mm	Zen	1 3/8	340	17 3/8	18 1/2	30	51
(h)	N	.....	HG	Al	16	.703x2.43	3	CS	5 3/4	17	1045	N	1.50x1.18	3	1.75x1.78	1.75x1.37	abce	14 mm	Zen	1	265	21 3/8	22 1/16	24 1/2	52
(h)	N	.....	HG	Al	16	.703x2.43	3	CS	5 3/4	17	1045	N	1.50x1.18	3	1.75x1.78	1.75x1.37	abce	14 mm	Zen	1	260	21 3/8	22 1/16	24 1/2	53
(h)	N	.....	HG	CI	25	.709x2.68	3	CS	5 3/4	17	1045	N	1.50x1.18	3	1.75x1.66	1.75x1.28	abce	14 mm	Zen	1	410	15	18 5/8	31 5/8	54
(h)	N	.....	HG	Al	20	.859x2.68	4	CS	7	32	1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	abce	18 mm	Zen	1 1/4	510	18 7/16	23 1/2	35 7/8	55
(h)	N	.....	HG	Al	20	.859x2.68	4	CS	7	32	1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	abce	18 mm	Zen	1 1/4	435	20 1/4	21 7/8	33	56
(h)	N	.....	HG	Al	24	.859x2.68	4	CS	7	32	1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	abce	18 mm	Zen	1 1/4	540	18 7/16	23 1/2	35 1/8	57
(h)	N	.....	HG	Al	24	.859x2.68	4	CS	7	32	1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	abce	18 mm	Zen	1 1/4	460	20 1/4	21 7/8	33	58
(h)	N	.....	HG	Al	24	.859x2.68	4	CS	7	32	1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	abce	18 mm	Zen	1 1/4	465	22 3/4	27 3/4	33	59
(h)	N	.....	HG	CI	29	.859x2.68	4	CS	7	32	1045	Y	1.93x1.31	4	2.25x1.81	2.25x1.21	abce	18 mm	Zen	1 1/4	650	18 1/2	23	41	60
(h)	N	.....	HG	CI	31	.859x2.68	4	CS	7	32	1045	Y	1.93x1.31	4	2.25x1.81	2.25x1.21	abce	18 mm	Zen	1 1/2	665	18 1/2	23	42	61
(h)	N	.....	HG	Al	20	.859x2.68	4	CS	7	32	1045	Y	1.93x1.31	4	2.25x1.81	2.25x1.21	abce	18 mm	Zen	1 1/2	625	23	22	39 1/16	62
(h)	N	.....	HG	Al	20	.859x2.68	4	CS	7	32	1045	Y	1.93x1.31	4	2.25x1.81	2.25x1.21	abce	18 mm	Zen	1 1/4	630	23	22	39 1/16	63
45	N	.....	HG	Al	28	.859x2.87	4	CS	8 3/16	34	1045	Y	2.12x1.37	5	2.37x2.06	2.37x1.43	abce	18 mm	Zen	1 3/4	795	22	26 1/16	43 3/16	64
45	N	.....	HG	Al	28	.859x2.87	4	CS	8 3/8	34	1045	Y	2.12x1.37	5	2.37x2.06	2.37x1.43	abce	18 mm	Zen	1 3/4	750	24 1/2	25 1/8	42 7/16	65
(h)	N	.....	HG	Al	28	.859x2.87	4	CS	8 3/8	34	1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	abce	18 mm	Str	1 1/2	730	22 1/2	30	42 3/4	66
(h)	N	.....	HG	Al	28	.859x2.87	4	CS	8 3/8	34	1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	abce	18 mm	Str	1 1/2	730	22 1/2	30	42 3/4	67
(h)	N	.....	HG	Al	28	.859x2.87	4	CS	8 3/8	34	1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	abce	18 mm	Zen	1 1/2	730	30 1/4	32 1/2	42 3/4	68
45	N	.....	HG	Al	25	.874x2.92	4	CS	8 3/8	32	1045	Y	2.12x1.37	4	2.39x1.91	2.39x1.50	abce	18 mm	Zen	1 1/2	595	28 5/8	23	38 1/8	69
(h)	N	.....	HG	Al	40	1.10x3.18	4	CS	8 3/8	47	1045	Y	2.25x1.56	7	2.62x2.15	2.62x1.56	abce	18 mm	Str	1 1/2	985	23 11/16	26	49 5/16	70
(h)	N	.....	HG	Al	45	1.10x3.43	4	CS	8 3/8	47	1045	Y	2.25x1.56	7	2.62x2.15	2.62x1.56	abce	18 mm	Str	1 3/4	1015	23 11/16	26	49 5/16	71
(h)	N	.....	HG	Al	45	1.10x3.43	4	CS	8 3/8	47	1045	Y	2.25x1.56	7	2.62x2.15	2.62x1.56	abce	18 mm	Str	1 1/2	990	23 11/16	26	49	72
30	E	HS	HG	CI	74	1.25x3.43	4	CS	9	60	1045	Y	2.37x1.81	7	2.62x2.65	2.62x1.65	abce	18 mm	Str	1 1/2	1250	22	29 1/16	55 5/16	73
(h)	N	.....	HG	Al	30	1.11x3.05	4	CS	9	49	1045	Y	2.25x1.50	5	2.62x2.53	2.62x1.65	abce	18 mm	Str	1 1/2	1275	25 3/4	28	59 1/16	74
(h)	N	.....	HG	Al	30	1.11x3.05	4	CS	9	49	1045	Y	2.25x1.50	5	2.62x2.53	2.62x1.65	abce	18 mm	Str	1 1/2	1250	25 3/4	28	54 7/16	75
45	N	.....	HC	Al	57	1.25x3.75	6	AS	11	104	4140	N	2.25x2.45	3	2.75x2.31	2.75x2.31	abcefg	7/8–18	Zen	1 1/2	1135*	27 7/16	40 1/2	46 11/16	76
45	N	.....	HC	Al	57	1.25x3.75	6	AS	11	104	4140	N	2.25x2.45	3	2.75x2.31	2.75x2.31	abcefg	18 mm	Zen	1 1/2	††	24 5/8	(6)	(7)	77
45	N	.....	HC	Al	74	1.25x4.25	6	AS	11	101	4140	N	2.37x2.45	3	3.00x2.31	3.00x2.31	abcefg	7/8–18	Zen	1 1/2	1160*	27 7/16	40 3/4	49 3/16	78
45	N	.....	HC	Al	41	1.00x3.34	4	AS	11	75	4140	N	2.25x1.88	4	2.75x2.68	2.75x2.68	abcefg	18 mm	Zen	1 1/2	1180*	25 3/4	38 1/16	49 1/16	79
30	E	CA	Ch	Al	40	1.25x3.50	5	AS	11	90	4140	Y	2.62x2.00	7	3.00x1.50	3.00x2.25	abcefg	18 mm	Zen	1 1/2	1235*	54 3/4	18 1/16	52 7/16	80
45	N	.....	HC	Al	58	1.25x3.75	5	AS	11	101	4140	Y	2.37x2.45	4	2.75x2.18	2.75x3.18	abcefg	18 mm	Zen	1 3/4	1310*	31 1/4	40 3/16	55 1/16	81
45	N	.....	HC	Al	52	1.25x3.75	5	AS	11	104	4140	N	2.25x2.45	4	2.75x2.18	2.75x3.18	abcefg	18 mm	Zen	1 3/4	2130*	23 1/16	42	89 1/16	82
30	E	CA	Ch	Al	52	1.12x3.74	4	AS	11	104	4140	Y	2.62x2.00	7	3.00x1.50	3.00x2.25	abcefg	18 mm	Zen	1 3/4	1252*	54 3/4	18 1/16	52 7/16	83
30	E	CA	Ch	Al	56	1.12x3.98	4	AS	11	104	4140	Y	2.62x2.00	7	3.00x1.50	3.00x2.25	abcefg	18 mm	Zen	1 3/4	1265*	54 3/4	18 1/16	52 7/16	84
30	E	CA	Ch	Al	77	1.37x4.20	5	AS	11	119	4140	Y	2.75x2.45	7	3.00x2.18	3.25x2.56	abcefg	18 mm	Zen	2	1960*	53 1/16	20 1/16	69 5/16	85
(h)	E	CA	HC	Al	97	1.37x4.20	4	AS	11	117	4140	Y	2.50x2.45	7	3.25x1.56	3.25x2.56	abcefg	18 mm	Zen(2)	2	1975*	28 1/16	41 7/16	59 7/16	86
(h)	E	CA	HC	Al	104	1.37x4.43	5	AS	11	117	4140	Y	2.50x2.45	7	3.25x1.56	3.25x2.56	abcefg	18 mm	Zen(2)	2	2020*	28 1/16	41 7/16	59 7/16	87
30	E	CA	HC	Al	104	1.37x4.43	5	AS	11	119	4140	Y	2.75x2.45	7	3.25x2.18	3.25x2.56	abcefg	18 mm	Zen(2)	1 3/4	2035*	53 1/16	22 1/4	69 5/16	88
(h)	E	CA	HC	Al	114	1.37x4.68	5	AS	11	117	4140	Y	2.50x2.45	7	3.25x1.56	3.25x2.56	abcefg	18 mm	Zen(2)	2	2050*	28 1/16	41 7/16	59 7/16	89
(h)	E	4140°	HC	Al	120	1.37x4.93	6	3140	12	157	4140	Y	3.00x2.43	7	3.25x2.09	3.25x3.12	abceg	18 mm	Zen	2 1/2	1950*	28	44 5/16	59 1/16	90
30	N	.....	Ch	Al	108	1.37x4.68	5	AS	11	117	4140	Y	2.50x2.45	7	2.75x1.94	2.75x1.94	abcefg	18 mm	Zen(2)	2	3265*	25	47 1/16	90 1/2	91
30	N	.....	Ch	Al	108	1.37x4.68	5	AS	11	117	4140	Y	2.50x2.45	7	2.75x1.94	2.75x1.94	abcefgr	18 mm	Zen(2)	2	2200*	25	39 5/16	74 1/16	92
30	E	CA	HC	Al	101	1.37x4.68	6	3140	12	237 1/4	4140	Y	3.00x2.43	7	3.25x2.09	3.25x3.09	abcefgr	18 mm	Zen(3)	2 1/2	3650*	45	42 3/4	88	93
30	E	CA	HC	Al	128	1.37x4.94	6	3140	12	237 1/4	4140	Y	3.00x2.43	7	3.25x2.09	3.25x2.09	abcefgr	18 mm	Zen(3)	2 1/2	4560*	43 3/4	50 1/4	108 7/16	94
30	E	CA	HC	Al	128	1.37x4.94	6	3140	12	237 1/4	4140	Y	3.00x2.43	7	3.25x2.09	3.25x2.09	abcefgr	18 mm	Zen(3)	2 1/2	3650*	45	42 3/4	88	95
30	E	CA	HC	Al	123	1.37x4.94	6	3140	12	237 1/4	4140	Y	3.00x2.43	7	3.25x2.09	3.25x2.09	abcefgr	18 mm	Zen(4)	2 1/2	4105*	43 3/4	56 1/4	91 7/16	96

(For abbreviations see pages 100-101)

American Gasoline

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Hercules BXB	M, Tr, Ind	2-2 7/8x3	10-2300	8-2300	39.0	6.00	28-1250 (BE)	N	In	L	Sil	1.23	1.10	1.25	.875	.200	.200	.248	.248
2	Hercules NXA	M, Tr, Ind	2-3x4	13-2000	11-2000	56.5	5.50	39-1100 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.312	.312
3	Hercules NXB	M, Tr, Ind	2-3 1/4x4	16-2000	13-2000	66.3	5.50	46-1100 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.312	.312
4	Hercules ZXA	T,Tr,M,Ind	4-2 1/2x3	23-3800	19-3800	58.8	6.10	37-1800 (BE)	N	In	L	Sil	1.23	1.10	1.25	.875	.200	.200	.248	.248
5	Hercules ZXB	T,Tr,M,Ind	4-2 5/8x3	25-3600	21-3800	64.9	6.10	40-2000 (BE)	N	In	L	Sil	1.23	1.10	1.25	.875	.200	.200	.248	.248
6	Hercules IX-3, IX-5	T,Tr,M,Ind	4-2 1/2x4	28-3200	24-3200	78.5	5.20	55-2000 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.310	.310
7	Hercules IXF-3	T,Tr,M,Ind	4-2 3/4x4	33-3200	28-3200	95.0	5.50	65-2000 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.310	.310
8	Hercules IXA-3, IXA-5	T,Tr,M,Ind	4-3x4	40-3200	34-3200	113.0	5.50	79-2000 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.310	.310
9	Hercules IXK-3	T,Tr,M,Ind	4-3 1/8x4	43-3200	37-3200	122.9	5.50	86-2000 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.310	.310
10	Hercules IXB-3, IXB-5	T,Tr,M,Ind	4-3 1/4x4	47-3200	40-3200	133.0	5.20	92-2000 (BE)	N	In	L	CNS	1.48	1.35	1.25	1.12	.250	.250	.310	.310
11	Hercules OOA	T,Tr,M,Ind	4-3 1/2x4 1/2	35-2000	30-2000	173.2	4.20	107-1200 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.328	.326	.373	.373
12	Hercules OOB	T,B,Tr,M,Ind	4-3 3/4x4 1/2	38-2000	32-2000	198.8	4.20	125-1000 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.326	.328	.373	.373
13	Hercules OOC	T,B,Tr,M,Ind	4-4x4 1/2	41-2000	35-2000	226.2	4.20	143-1000 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.326	.326	.373	.373
14	Hercules OX	T, Tr, Ind	4-4x5	46-1800	39-1800	251.3	4.30	155-1000 (BE)	N	In	L	CNS	1.87	1.87	1.62	1.62	.326	.326	.373	.373
15	Hercules OXC	T, Tr, Ind	4-4 1/4x5	56-1800	47-1800	283.5	4.30	185-1000 (BE)	N	In	L	CNS	1.87	1.87	1.62	1.62	.326	.326	.373	.373
16	Hercules K	T, Tr, Ind	4-4 1/4x5 3/4	55-1600	47-1600	326.3	3.89	202-1000 (BE)	N	In	L	Sil	2.25	2.25	2.00	2.00	.326	.326	.434	.434
17	Hercules L	T, Tr, Ind	4-4 1/2x5 3/4	59-1600	50-1600	365.8	3.78	226-1000 (BE)	N	In	L	Sil	2.25	2.25	2.00	2.00	.326	.326	.434	.434
18	Hercules G	T, Tr, Ind	4-4 3/4x5 3/4	63-1600	54-1600	407.6	3.89	250-1000 (BE)	N	In	L	Sil	2.25	2.25	2.00	2.00	.326	.326	.434	.434
19	Hercules E	T, Tr, Ind	4-5x5 3/4	74-1600	63-1600	451.4	4.00	288-1000 (BE)	N	In	L	Sil	2.25	2.25	2.00	2.00	.326	.326	.434	.434
20	Hercules TX	Tr, Ind	4-5 1/2x7	88-1200	75-1200	665.0	3.84	425-800 (BE)	N	In	L	Sil	2.90	2.90	2.50	2.50	.375	.375	.497	.497
21	Hercules TXA	Tr, Ind	4-6x7	98-1200	83-1200	792.0	3.84	495-800 (BE)	N	In	L	Sil	2.90	2.90	2.50	2.50	.375	.375	.497	.497
22	Hercules TXO	Tr, Ind	4-6 3/8x7	112-1200	90-1200	894.0	3.84	586-800 (BE)	N	In	L	Sil	2.90	2.90	2.50	2.50	.375	.375	.497	.497
23	Hercules QXA-3, QXA-5	T,B,Tr,M,Ind	6-3 1/8x4 1/8	59-3000	50-3000	190.0	5.50	130-1000 (BE)	N	In	L	CNS	1.50	1.37	1.31	1.12	.281	.281	.310	.310
24	Hercules QXB-3, QXB-5	T,B,Tr,M,Ind	6-3 1/4x4 1/8	67-3500	57-3500	205.0	5.85	150-1000 (BE)	N	In	L	CNS	1.50	1.37	1.31	1.12	.281	.281	.310	.310
25	Hercules QXC-3, QXC-5	T,B,Tr,M,Ind	6-3 3/8x4 1/8	73-3500	62-3500	221.0	5.85	159-1000 (BE)	N	In	L	CNS	1.62	1.37	1.43	1.12	.281	.281	.310	.310
26	Hercules QXD-3, QXD-5	T,B,Tr,M,Ind	6-3 7/16x4 1/8	73-3000	62-3000	230.0	6.50	171-1100 (BE)	N	In	L	CNS	1.62	1.37	1.43	1.12	.281	.281	.310	.310
27	Hercules JXA	T,B,Tr,M,Ind	6-3 3/8x4 1/4	63-2800	53-2800	228.0	5.16	141-1000 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.322	.322	.373	.373
28	Hercules JXF	T,B,Tr,M,Ind	6-3 1/2x4 1/4	71-3000	60-3000	232.3	6.16	151-1200 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.322	.322	.373	.373
29	Hercules JXE-3, JXG	T,B,Tr,M,Ind	6-3 1/2x4 1/4	77-3000	65-3000	246.0	6.11	169-1000 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.356	.356	.373	.373
30	Hercules JXB	T,B,Tr,M,Ind	6-3 5/8x4 1/4	84-3000	71-3000	263.0	5.40	195-1000 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.356	.356	.373	.373
31	Hercules JXC	T,B,Tr,M,Ind	6-3 3/4x4 1/4	87-3000	74-3000	282.0	5.90	215-1000 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.356	.356	.373	.373
32	Hercules JXD	T,B,Tr,M,Ind	6-4x4 1/4	110-3000	93-3000	320.0	6.50	243-1200 (BE)	N	In	L	CNS	1.75	1.62	1.50	1.37	.356	.356	.373	.373
33	Hercules WXC	T,B,Tr,M,Ind	6-4x4 1/2	103-2800	87-2800	339.0	5.96	255-1100 (BE)	N	In	L	Sil	1.75	1.75	1.62	1.50	.388	.388	.373	.373
34	Hercules WXC-2	T,B,Tr,M,Ind	6-4 1/8x4 1/2	110-2800	93-2800	360.8	5.96	271-1100 (BE)	N	In	L	Sil	1.75	1.75	1.62	1.50	.388	.388	.373	.373
35	Hercules WXC-3	T,B,Tr,M,Ind	6-4 1/4x4 1/2	117-2800	99-2800	383.0	5.96	288-1100 (BE)	N	In	L	Sil	1.75	1.75	1.62	1.50	.388	.388	.373	.373
36	Hercules WXLC	T,B,Tr,M,Ind	6-4x4 3/4	111-2800	94-2800	358.0	6.29	268-1100 (BE)	N	In	L	Sil	1.75	1.75	1.62	1.50	.388	.388	.373	.373
37	Hercules WXLC-3	T,B,Tr,M,Ind	6-4 1/4x4 3/4	126-2800	107-2800	404.0	6.29	302-1000 (BE)	N	In	L	Sil	1.75	1.75	1.62	1.50	.388	.388	.373	.373
38	Hercules YXC	T,B,Tr,M,Ind	6-4 3/8x4 3/4	116-2400	98-2400	428.4	6.29	335-1150 (BE)	N	In	L	Sil	2.00	2.00	1.75	1.75	.388	.388	.373	.373
39	Hercules YXC-2	T,B,Tr,M,Ind	6-4 1/2x4 3/4	123-2400	104-2400	453.0	6.29	357-1100 (BE)	N	In	L	Sil	2.00	2.00	1.75	1.75	.388	.388	.373	.373
40	Hercules YXC-3	T,B,Tr,M,Ind	6-4 5/8x4 3/4	129-2400	109-2400	478.8	6.29	374-1100 (BE)	N	In	L	Sil	2.00	2.00	1.75	1.75	.388	.388	.373	.373
41	Hercules RXB	T,B,Tr,M,Ind	6-4 1/2x5 1/4	121-2400	103-2400	500.9	5.41	362-1100 (BE)	N	In	L	Sil	2.00	2.00	1.75	1.75	.388	.388	.373	.373
42	Hercules RXC	T,B,Tr,M,Ind	6-4 5/8x5 1/4	131-2400	111-2400	529.2	5.41	395-1000 (BE)	N	In	L	Sil	2.00	2.00	1.75	1.75	.388	.388	.373	.373
43	Hercules RXLC	T,B,Tr,M,Ind	6-4 5/8x5 1/4	144-2400	122-2400	529.2	6.20	413-1000 (BE)	N	In	L	Sil	2.00	2.00	1.75	1.75	.388	.388	.373	.373
44	Hercules RXLD	T,B,Tr,M,Ind	6-4 3/4x5 1/4	152-2400	129-2400	558.0	6.20	438-1000 (BE)	N	In	L	Sil	2.00	2.00	1.81	1.75	.388	.388	.373	.373
45	Hercules HXB	T,B,Tr,M,Ind	6-5x6	160-2100	136-2100	707.0	5.75	502-900 (BE)	N	Se	L	Sil	2.43	2.31	2.12	2.00	.468	.468	.498	.498
46	Hercules HXC	T,B,Tr,M,Ind	6-5 1/4x6	177-2100	150-2100	779.0	5.69	550-1000 (BE)	N	Se	L	Sil	2.43	2.31	2.12	2.00	.468	.468	.498	.498
47	Hercules HXD	T,B,Tr,M,Ind	6-5 1/2x6	184-1800	156-1800	855.0	5.73	630-900 (BE)	N	Se	L	Sil	2.43	2.31	2.12	2.00	.468	.468	.498	.498
48	Hercules HXE	T,B,Tr,M,Ind	6-5 3/4x6	200-1800	170-1800	935.0	5.50	695-900 (BE)	N	Se	L	Sil	2.43	2.31	2.12	2.00	.468	.468	.498	.498
49	Hudson 20-C	C, T	6-3x4 1/8		92-4000	175.0	7.25	138-1400 (EA)	N	In	L	Sil	1.37	1.37	1.26	1.23	.343	.343	.341	.339
50	Hudson 28-C	C, T	6-3x5		98-4000	212.0	6.50	167-1200 (EA)	N	In	L	Sil	1.37	1.37	1.23	1.23	.343	.343	.341	.339
51	International U-2	M, Ind	4-3x4	24-1800	22-1800	113.1	5.23	78-1000 (EA)	W	In	I	CNS	1.34	1.21	1.18	1.06	.261	.261	.341	.341
52	International U-4	M, Ind	4-3 3/8x4 1/4	33-1800	31-1800	152.1	5.90	108-1250 (EA)	D	In	I	CNS	1.50	1.37	1.34	1.21	.343	.343	.341	.341
53	International U-6	M, Ind	4-3 7/8x5 1/4	42-1500	41-1500	247.7	5.65	162-900 (EA)	D	In	I	CNS	1.81	1.65	1.59	1.43	.438	.438	.371	.371
54	International U-9	M, Ind	4-4.4x5 1/2	55.5-1500	54.5-1500	334.5	5.40	228-1000 (EA)	D	In	I	CNS	2.09	1.91	1.87	1.69	.469	.469	.402	.402
55	International U-21	M, Ind	6-3 3/4x4 1/2		66-1800	298.2	5.72	200-1200 (EA)	W	In	I	Sil	1.87	1.75	1.62	1.50	.343	.343	.372	.372
56	International PA-100	M, Ind	6-5x5 1/2	117-1400	110-1400	648.0	5.30	447-700 (EA)	W	In	I	Sil	2.37	2.37	2.12	2.12	.437	.437		
57	Kermath ZX	M	4-2 5/8x3		25-3400	65.0	6.00	40-1700 (EA)	N	In	L	Sil	1.25	1.12	1.12	.875	.250	.250	.310	.310
58	Kermath IXH	M	4-3 1/4x4		60-3600	134.0	5.50	97-2200 (EA)	N	In	L	Sil	1.48	1.35	1.25	1.12	.250	.250	.310	.310
59	Kermath KWF	M	4-3 1/4x4 3/8		40-2700	134.0	6.43	106-2200 (EA)	N	In	L		1.53	1.46	1.34	1.28	.359	.359	.373	.373
60	Kermath KWHS	M	4-3 1/4x4 3/8		61-3600	134.0	6.43	106-2200 (EA)	N	In	L		1.53	1.46	1.34	1.28	.359	.359	.373	.373
61	Kermath KWSS	M	4-3 1/4x4 3/8		63-3800	134.0	6.43	106-2200 (EA)	N	In	L		1.53	1.46	1.34	1.28	.359	.359	.373	.373
62	Kermath P-841	M	6-3 1/4x3 3/4		110-3600	187.0	7.00		N	In	L	Sil	1.47	1.34	1.31	1.18	.296	.296	.312	.312
63	Kermath QXC	M	6-3 3/8x4 1/8		95-3600	221.0	6.50		N	In	L	Sil	1.87	1.87	1.81	1.81	.281	.281	.310	.310
64	Kermath P-640	M	6-3 7/8x4		103-3600	239.0	7.20		N	In	L	Sil	1.59	1.47	1.37	1.31	.296	.296	.312	.312
65	Kermath JXD	M	6-4x4 1/4		122-3000	320.0	6.90	235-2000 (EA)	N	In	L	CNS	1.84	1.62	1.62	1.37	.376	.376	.373	.373
66	Kermath WXC	M	6-4 1/4x4 1/2		115-2600	383.0	5.80	265-1000 (EA)	N	In	L	Sil	1.87	1.75	1.62	1.50	.356	.356	.373	.373
67	Kermath WXL	M	6-4 1/4x4 3/4		155-3000	424.0	6.50		N	In	L	CNS	2.06	1.87	1.81	1.62	.500	.500	.373	.373
68	Kermath D	M	6-4 5/8x5 3/4		150-2500	520.0	5.70	350-1000 (EA)	N	Se	L	CNS	2.50	2.25	2.28	2.00	.437	.375	.437	.375
69	Kermath L	M	6-5x5 3/4		157-2000	678.0	5.30	482-1000 (EA)	N	Se	L	CNS	2.56	2.37	2.37	2.12	.375	.375	.437	.437
70	Kermath LA	M	6-5x5 3/4		200-2400	678.0	5.70	480-1000 (EA)	N	Se	L	CNS	2.62	2.37	2.40	2.00	.437	.375	.437	.437
71	Kermath R	M	6-5x5 3/4		225-2400	678.0	5.70	540-1700 (EA)	N	Se	I	CNS	1.93	1.93	1.76	1.76	.375	.375	.375	.375
72	Kermath VF	M	8-3 1/8x3 3/4		85-3800	221.0	6.30	150-2000 (EA)		In	L	Sil	1.53	1.53			.292	.292	.310	.310
73	Kermath VM	M	8-3 1/4x3 3/4		95-3600	239.0	6.15	170-2100 (EA)		In	L	CNS	1.53	1.53			.292	.292	.311	.311
74	Kermath P-835	M	8-3 1/4x3 1/2		100-3600	232.0	7.00	175-1600 (EA)	N	In	L	Sil	1.37	1.34	1.25	1.19	.328	.328	.312	.312
75	Kermath VZ	M	12-2 7/8x3 3/4		120-3500	292.0				In	L	CNS	1.53	1.53			.292	.292	.311	.311
76	Kermath V	M	12-5x6		500-2400	1414.0	5.70	1070-1400 (EA)	N	Se	I	CNS	1.93	1.93	1.76	1.76	.375	.375	.437	.437
77	Lathrop Standard	M	2-5 1/8x6 1/2		16-600	274.7		140-525 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
78	Lathrop Standard	M	2-5 1/2x6 1/2		20-700	308.8		163-525 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
79	Lathrop Standard	M	3-5 1/8x6 1/2		27-700	412.1		206-600 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
80	Lathrop Standard	M	3-5 1/2x6 1/2		34-800	463.2		237-700 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
81	Lathrop LH	M	4-3 1/4x4		38-2200	133.0		92-2000 (EA)	N	In	L	CNS			1.25	1.12	.312	.312	.312	.312
82	Lathrop LH	M	4-4x4 1/2		49-1900	226.0		152-1300 (EA)	N	In	L	CNS			1.50	1.37	.312	.312	.375	.375
83	Lathrop Standard	M	4-5 1/8x6 1/2		29-700	549.5		233-500 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
84	Lathrop Standard	M	4-5 1/2x6 1/2		49-800	617.7		342-600 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
85	Lathrop Engineers	M	4-5 1/2x7		64-1000	665.2		373-650 (EA)	N	Se	L	CNS	2.68	2.50	2.31	2.12	.375	.375	.500	.500
86	Lathrop Engineers	M	4-6x7		76-1000	791.6		461-700 (EA)	N	Se	L	CNS	2.68	2.50	2.31	2.12	.375	.375	.500	.500
87	Lathrop LH	M	6-3 3/4x4 1/4		62-2200	282.0		173-550 (EA)	N	In	L	CNS			1.50	1.37	.312	.312	.375	.375
88	Lathrop LH-D6	M	6-4x4 1/4		107-2500	320.0		226-2500 (EA)	N	In	L	CNS	1.75	1.62	1.50	1.37	.356	.356	.375	.375
89	Lathrop Mystic	M	6-4 1/2x5 1/2		96-1600	524.8		321-1350 (EA)	N	Se	L	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
90	Lathrop Mystic	M	6-4 3/4x5 1/2		106-1600	584.7		379-900 (EA)	N	Se	L	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
91	Lathrop Standard	M	6-5 1/2x6 1/2		73-750	926.5		515-675 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
92	Lathrop Standard	M	6-5 1/4x6 1/2		103-1000	926.5		550-825 (EA)	N	Se	T	CNS	2.25	2.25	2.00	2.00	.500	.500	.437	.437
93	Lathrop Mystic	M	6-5 1/2x6 1/2		155-1500	926.5		561-1200 (EA)	N	Se	L	CNS	2.68	2.68	2.31	2.31	.437	.437	.500	.500
94	Lathrop Mystic	M	6-5 3/4x6 1/2		179-1600	1012.8		640-1100 (EA)	N	Se	L	CNS	2.68	2.68	2.31	2.31	.437	.437	.500	.500
95	Lehman-Ford F-5	M	4-3 7/8x4 1/4	55-2500	50-2500	200.5	4.22	123-1250 (EA)	N	In	L	NCI	1.37	1.37			.287	.287		
96	Lehman-Ford D-5	M, Ind	8-2.6x3.2	65-3500	60-3500	136.0	6.60	94-2400 (EA)	N	In	L	CNS	1.28	1.28			.251	.251	.279	.279

(For abbreviations see pages 100-101)

Engines—*Continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT																
Seats													Crank-Pin	MAIN BEARINGS												
														Diameter and Length (In.)												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Diameter and Length (In.)	Number	Front	Rear	Oil Pressure to—	Spark Plug—Thread Size	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Line Number
30	N	.....	HG	CI	17	.687x2.50	3	3140	5 1/8	15	1045	Y	1.50x1.00	2	2.00x1.25	2.00x1.37	abe	14 mm	Op	5/8	131	14 7/8	16 1/4	18 1/2	1
30	N	.....	HG	CI	28	.750x2.56	3	3140	6 5/16	21	1045	Y	1.75x1.12	2	2.00x1.56	2.00x1.62	abe	7/8–18	Op	Op	270	15 1/4	18 1/2	18 5/8	2
30	N	.....	HG	CI	29	.750x2.81	3	3140	6 5/16	21	1045	Y	1.75x1.12	2	2.00x1.56	2.00x1.62	abe	7/8–18	Op	Op	270	15 1/4	18 1/2	18 5/8	3
30	N	.....	HG	CI	17	.687x2.18	3	3140	5 1/8	15	1045	N	1.50x1.00	3	2.00x1.31	2.00x1.37	abe	14 mm	Op	Op	179	14 3/4	16 7/8	21 7/8	4
30	N	.....	HG	CI	19	.687x2.31	3	3140	5 1/8	15	1045	N	1.50x1.00	3	2.00x1.31	2.00x1.37	abe	14 mm	Op	Op	179	14 3/4	16 7/8	21 7/8	5
30	N	.....	HG	CI	18	.750x2.18	3	3140	6 5/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abe	18 mm	Op	Op	255	16 5/8	18 3/4	24 1/8	6
30	N	.....	HG	CI	19	.750x2.43	3	3140	6 5/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abe	7/8–18	Op	Op	275	16 5/8	18 3/4	24 1/8	7
30	N	.....	HG	CI	28	.750x2.56	3	3140	6 5/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abe	7/8–18	Op	Op	285	16 5/8	18 3/4	24 1/8	8
30	N	.....	HG	CI	29	.750x2.56	3	3140	6 5/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abe	7/8–18	Op	Op	280	16 5/8	18 3/4	24 1/8	9
30	N	.....	HG	CI	29	.750x2.81	3	3140	6 5/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abe	7/8–18	Op	Op	293	16 5/8	18 3/4	24 1/8	10
45	N	.....	HG	CI	49	1.00x3.15	4	1040	8	37	1045	N	2.00x1.50	3	2.00x2.18	2.00x2.62	abe	7/8–18	Op	Op	460	17 1/2	23 1/4	29 7/8	11
45	N	.....	HG	CI	56	1.00x3.25	4	1040	8	37	1045	N	2.00x1.50	3	2.00x2.18	2.00x2.62	abe	7/8–18	Op	Op	460	17 1/2	23 1/4	29 7/8	12
45	N	.....	HG	CI	56	1.00x3.50	4	1040	8	37	1045	N	2.00x1.50	3	2.00x2.18	2.00x2.62	abe	7/8–18	Op	Op	460	17 1/2	23 1/4	29 7/8	13
45	E	.....	HG	CI	67	1.37x3.50	4	1035	9 1/2	58	1045	N	2.00x2.25	3	2.00x3.18	2.00x3.31	abe	7/8–18	Op	1 1/4	655	20 1/2	28 3/4	36 5/8	14
45	E	.....	HG	CI	73	1.37x3.75	4	1035	9 1/2	58	1045	N	2.00x2.25	3	2.00x3.18	2.00x3.31	abe	7/8–18	Op	1 1/4	655	20 1/2	28 3/4	36 5/8	15
45	N	.....	HG	CI	82	1.50x3.75	4	1035	10 7/8	83	1045	N	2.50x2.62	3	3.00x3.37	3.00x3.50	abe	7/8–18	Op	1 1/4	875	21 1/2	30 7/8	41 1/8	16
45	N	.....	HG	CI	95	1.50x4.00	4	1035	10 7/8	83	1045	N	2.50x2.62	3	3.00x3.37	3.00x3.50	abe	7/8–18	Op	1 1/2	880	21 1/2	30 7/8	41 1/8	17
45	N	.....	HG	CI	103	1.50x4.25	4	1035	10 7/8	83	1045	N	2.50x2.62	3	3.00x3.37	3.00x3.50	abe	7/8–18	Op	1 1/2	885	21 1/2	30 7/8	41 1/8	18
45	N	.....	HG	CI	106	1.50x4.50	4	1035	10 7/8	83	1045	N	2.50x2.62	3	3.00x3.37	3.00x3.50	abe	7/8–18	Op	1 1/2	890	21 1/2	30 7/8	41 1/8	19
45	E	.....	HG	CI	198	1.87x4.87	4	1035	13 1/4	178	1045	N	3.00x3.00	3	3.75x4.37	3.75x4.50	abe	7/8–18	Op	1 3/4	1800	26 1/2	38	52 1/2	20
45	E	.....	HG	CI	222	1.87x5.37	5	1035	13 1/4	178	1045	N	3.00x3.00	3	3.75x4.37	3.75x4.50	abe	7/8–18	Op	1 3/4	1815	26 1/2	38	52 1/2	21
45	E	.....	HG	CI	240	1.87x5.75	5	1035	13 1/4	178	1045	N	3.00x3.00	3	3.75x4.37	3.75x4.50	abe	7/8–18	Op	2	1850	26 1/2	38	52 1/2	22
30	N	.....	HG	CI	53	.875x2.67	4	1035	7	26	CS‡	N	2.00x1.25	7	2.50x1.31	2.50x1.93	abe	7/8–18	Op	1 1/4	480	17 7/8	20 7/8	33 7/8	23
30	N	.....	HG	CI	53	.875x2.79	4	1035	7	26	CS‡	N	2.00x1.25	7	2.50x1.31	2.50x1.93	abe	7/8–18	Op	1 1/4	480	17 7/8	20 7/8	33 7/8	24
30	N	.....	HG	Al	24	.875x2.90	4	1035	7	26	CS‡	N	2.00x1.25	7	2.50x1.31	2.50x1.93	abe	7/8–18	Op	1 1/4	483	17 7/8	20 7/8	33 7/8	25
30	N	.....	HG	Al	24	.875x2.90	4	1035	7	26	CS‡	N	2.00x1.25	7	2.50x1.31	2.50x1.93	abe	7/8–18	Op	1 1/4	485	17 7/8	20 7/8	33 7/8	26
45	N	.....	HG	CI	43	1.00x2.90	4	1035	8	37	CS‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Op	1 1/4	550	17 5/8	23 1/2	37 3/8	27
45	N	.....	HG	Al	32	1.00x2.90	4	1035	8	37	CS‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Op	1 1/4	555	17 5/8	23 1/2	37 3/8	28
45	N	.....	HG	Al	31	1.00x2.90	4	1035	8	37	CS‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Op	1 1/4	555	17 5/8	23 1/2	37 3/8	29
45	N	.....	HG	Al	35	1.00x3.15	4	1035	8	37	CS‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Op	1 1/4	560	17 5/8	23 1/2	37 3/8	30
45	N	.....	HG	Al	37	1.00x3.37	4	1035	8	37	CS‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Op	1 1/4	565	17 5/8	23 1/2	37 3/8	31
45	N	.....	HG	Al	40	1.00x3.51	4	1035	8	37	CS‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Op	1 3/4	570	17 5/8	23 1/2	37 3/8	32
45	N	.....	HG	CI	64	1.12x3.56	4	3140	9 1/8	51	1045	N	2.25x1.50	7	2.62x1.75	2.62x2.75	abe	7/8–18	Op	1 3/4	805	21	27	41 1/8	33
45	N	.....	HG	CI	65	1.12x3.62	4	3140	9 1/8	51	1045	N	2.25x1.50	7	2.62x1.75	2.62x2.75	abe	7/8–18	Op	1 3/4	810	21	27	41 1/8	34
45	N	.....	HG	CI	83	1.12x3.68	4	3140	9 1/8	51	1045	N	2.25x1.50	7	2.62x1.75	2.62x2.75	abe	7/8–18	Op	1 3/4	820	21	27	41 1/8	35
45	N	.....	HG	Al	47	1.12x3.56	4	3140	8 7/8	50	CS‡	Y	2.25x1.50	7	2.62x1.75	2.75x2.75	abe	7/8–18	Op	1 3/4	811	21	27	41 1/8	36
45	N	.....	HG	Al	55	1.12x3.68	4	3140	8 7/8	50	CS‡	Y	2.25x1.50	7	2.62x1.75	2.75x2.75	abe	7/8–18	Op	1 3/4	825	21	27	41 1/8	37
45	N	.....	HG	CI	79	1.25x3.93	4	1035	9 5/8	64	1045	N	2.50x1.75	7	3.00x2.00	3.00x3.00	abe	7/8–18	Op	1 3/4	975	21 1/2	31	45 1/8	38
45	N	.....	HG	CI	85	1.25x3.93	4	1035	9 5/8	64	1045	N	2.50x1.75	7	3.00x2.00	3.00x3.00	abe	7/8–18	Op	1 3/4	975	21 1/2	31	45 1/8	39
45	N	.....	HG	CI	87	1.25x4.06	4	1035	9 5/8	64	1045	N	2.50x1.75	7	3.00x2.00	3.00x3.00	abe	7/8–18	Op	1 3/4	975	21 1/2	31	45 1/8	40
45	N	.....	HG	Al	60	1.25x3.93	5	3140	9 3/8	81	1045	N	2.62x2.00	7	3.00x1.93	3.00x2.93	abe	7/8–18	Op	1 3/4	1000	21 1/2	31	45 1/8	41
45	N	.....	HG	Al	62	1.25x4.06	5	3140	9 3/8	81	1045	N	2.62x2.00	7	3.00x1.93	3.00x2.93	abe	7/8–18	Op	1 3/4	1010	21 1/2	31	45 1/8	42
45	N	.....	HG	Al	65	1.25x4.10	5	CNM	9 3/8	99	CS‡	N	3.00x2.00	7	3.50x1.93	3.50x2.93	abe	7/8–18	Op	1 3/4	1195	22 5/8	30	44 3/4	43
(h)	N	.....	HG	Al	69	1.25x4.10	5	CNM	9 3/8	99	CS‡	N	3.00x2.00	7	3.50x1.93	3.50x2.93	abe	7/8–18	Op	1 3/4	1195	22 5/8	30	44 3/4	44
30	E	.....	HG	Al	95	1.50x4.43	4	3140	12	143	1045	N	3.00x2.25	7	3.50x2.37	3.50x3.50	abce	7/8–18	Op	2	1810	24 1/2	40 1/2	54 1/2	45
30	E	.....	HG	Al	105	1.50x4.56	4	3140	12	143	1045	N	3.00x2.25	7	3.50x2.37	3.50x3.50	abce	7/8–18	Op	2	1810	24 1/2	40 1/2	54 1/2	46
30	E	.....	HG	Al	117	1.50x4.81	4	3140	12	143	1045	N	3.00x2.25	7	3.50x2.37	3.50x3.50	abce	7/8–18	Op	2	1830	24 1/2	40 1/2	54 1/2	47
30	E	.....	HG	Al	127	1.50x5.05	4	3140	12	143	1045	N	3.00x2.25	7	3.50x2.37	3.50x3.50	abce	7/8–18	Op	2	1830	24 1/2	40 1/2	54 1/2	48
45	N	.....	HG	CA	13	.750x2.44	4	1045	8 5/8	31	1045	Y	1.94x1.37	3	2.34x1.62	2.41x2.37	Splash	14 mm	Car	1 1/4	482	25	37 1/4	29 1/2	49
45	N	.....	HG	CA	13	.750x2.44	4	1045	8.175	31	1045	Y	1.94x1.37	3	2.34x1.62	2.41x2.37	Splash	14 mm	Car	1 1/4	504	25	37 1/4	29 1/2	50
45	N	.....	SB	CI	35	.919x2.50	4	1040	7 1/4	33	1045	N	1.75x1.19	3	2.12x1.37	2.12x1.84	abceg	18 mm	Zen	7/8	457*	20 5/8	40 1/4	50 1/4	51
45	N	.....	SB	CI	53	1.11x2.78	4	1040	8	57	1045	N	2.25x1.23	3	2.50x1.49	2.50x1.49	abceg	18 mm	Own	1	639*	23 7/8	40	54 3/4	52
45	E	MA	SB	CI	82	1.31x3.25	4	1040	10	.....	1045	N	2.50x1.72	3	2.75x1.56	2.75x1.56	abceg	18 mm	Own	1 1/4	914*	25 5/8	50 3/4	62 3/4	53
45	E	MA	SG	CI	111	1.50x3.71	4	1040	11	123	1045‡	Y	2.99x1.97	3	3.25x1.82	3.25x1.82	abcdeg	7/8–18	Own	1 3/4	1253*	23 1/16	42 1/16	40 1/4	54
45	.....	.....	HG	Al	34	1.10x3.17	4	AS	9 1/4	49	CS‡	N	2.25x1.62	7	2.70x1.53	2.70x2.54	abcde	7/8–18	Zen	1 3/8	1950*	28	35 5/8	49 1/16	55
45	.....	.....	HG	CI	130	1.50x4.10	4	AS	11 3/4	137	CNS	N	2.75x2.25	7	3.25x2.56	3.25x3.50	abcde	7/8–18	Zen	1 1/2	3120*	35	50 1/16	59 1/16	56
30	N	.....	HG	CI	19	.687x2.18	3	CS	5 1/8	15	CS	N	1.50x1.00	3	2.00x1.37	2.00x1.31	abcr	14 mm	Str	3/4	300*	18 1/16	17 5/8	29 1/16	57
30	N	.....	HG	Al	20	.750x2.87	4	3140	6 1/16	20	CS	N	1.75x1.12	3	2.00x1.62	2.00x1.58	abcr	7/8–18	Str	1 1/4	495*	23 1/4	21 1/8	34 1/16	58
45	N	.....	Ch	Al	12	.812x2.78	3	MS	9 1/16	34	1040	Y	1.93x1.31	3	2.33x1.75	2.33x1.92	abcr	14 mm	Str	1 1/4	495	21 1/4	24 1/2	36	59
45	N	.....	Ch	Al	12	.812x2.78	3	MS	9 1/16	34	1040	Y	1.93x1.31	3	2.33x1.75	2.33x1.92	abcr	14 mm	Str	1 1/4	495	21 1/4	24 1/2	36	60
45	N	.....	Ch	Al	12	.812x2.78	3	MS	9 1/16	34	1040	Y	1.93x1.31	3	2.33x1.75	2.33x1.92	abcr	14 mm	Str	1 1/4	495	21 1/4	24 1/2	36	61
(h)	N	.....	Ch	CNI	32	.937x2.87	3	DFS	7 1/16	32	DFS	Y	2.00x1.06	5	2.50x1.87	2.37x1.25	abcder	14 mm	Str	1 1/2	860*	24	23 7/8	52 1/16	62
30	N	.....	HG	Al	24	.875x2.79	4	CS	7	26	CS	N	2.00x1.25	7	2.50x1.93	2.50x1.87	abcr	7/8–18	Str	1 1/2	620*	24	24 1/4	42 5/8	63
(h)	N	.....	Ch	CI	.....	.....	3	DFS	7 1/16	37	DFS	Y	2.12x1.28	4	2.62x1.56	2.50x1.25	abcder	14 mm	Str	1 1/2	790*	24	23 7/8	47 5/8	64
30	N	.....	HG	Al	40	1.00x3.51	4	CS	8	38	CS	N	2.00x1.50	7	2.50x2.12	2.50x1.37	abcr	7/8–18	Str	1 3/4	925*	21 1/16	27 3/4	52 3/8	65
45	N	.....	HG	Al	.....	1.12x3.68	4	CS	9 1/8	51	CS	N	2.25x1.50	7	2.62x1.75	2.62x2.75	abcr	14 mm	Str	1 3/4	1125*	24 1/4	29 3/8	55 1/16	66
30	N	.....	HG	Al	.....	1.12x3.62	4	CS	9	51	CS	Y	2.25x1.12	7	2.68x2.75	2.68x1.75	abcr	14 mm	Str	2	1125*	24 1/4	29 3/8	56 1/16	67
(h)	E	HS	HG	Als	62	1.25x3.62	4	DFS	11	80	CS	N	2.25x2.23	7	2.50x3.91	2.50x2.56	abcder	14 mm	Str	2	1390*	26 3/4	33 1/4	69 7/8	68
45	N	.....	HG	Als	82	1.25x4.50	4	DFS	11	80	CS	N	2.25x2.23	7	2.50x3.91	2.50x2.62	abcder	18 mm	Str	2	1570*	29 1/2	34 1/16	69 7/8	69
45	N	.....	HG	Als	82	1.25x4.50	4	DFS	11	80	CS	N	2.25x2.23	7	2.50x3.91	2.50x2.62	abcder	14 mm	Str(2)	1 3/4	1570*	26 1/4	34 1/16	69 7/8	70
45	N	.....	SB	Als	82	1.25x4.50	4	DFS	11	80	DFS	N	2.25x2.23	7	2.50x3.91	2.50x2.62	abcder	18 mm	Str(2)	1 3/4	1500*	30 1/2	39 3/4	69 3/4	71
45	Bo	TA	HG	CAS	12	.750x2.85	3	AS	7	16	CAS	Y	2.00x1.94	3	2.00x1.81	2.00x2.25	abcr	7/8–18	Ford	.....	730	29 1/16	31 7/16	43 13/16	72
45	Bo	TA	HG	CAS	17	.750x2.84	3	AS	7	17	CAS	Y	2.14x1.75	3	2.50x1.72	2.50x2.25	abce	14 mm	Ford	.....	730	29 1/16	31 7/16	43 13/16	73
(h)	.....	.....	Ch	CI	32	.937x2.87	3	DFS	7 9/16	32	DFS	Y	2.00x1.56	5	2.37x2.25	2.24x1.31	abcder	14 mm	Str	1 1/2	860*	24	23 1/16	52 1/4	74
45	Bo	TA	HG	CAS	11	.750x2.48	3	DFS	.....	22	CAS	Y	2.12x1.57	4	2.40x1.83	2.40x2.54	abce	14 mm	Ford	.....	800	24 11/16	32	51 1/2	75
45	N	.....	SB	Als	82	1.25x4.50	4	CNS	11	184	CNS	Y	2.75x2.25	7	3.00x3.84	3.00x2.25	abcder	18 mm	Str(4)	2	2700*	42 1/2	43 3/16	75 11/16	76
45	.....	.....	HG	CI	160	1.37x4.62	4	AS	12 1/4	96	CNS	N	1.87x2.75	3	2.25x5.00	2.25x4.00	abe	7/8–18	Zen	1 1/4	975	23 1/2	22	55 1/2	77
45	.....	.....	HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	1.87x2.75	3	2.25x5.00	2.25x4.00	abe	7/8–18	Zen	1 1/4	1000	23 1/2	22	55 1/2	78
45	.....	.....	HG	CI	160	1.37x4.62	4	AS	12 1/4	96	CNS	N	1.87x2.75	4	2.25x5.00	2.25x4.00	abe	7/8–18	Zen	1 1/2	1400	25	22 1/4	60 1/2	79
45	.....	.....	HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	1.87x2.75	4	2.25x5.00	2.25x4.00	abe	7/8–18	Zen	1 1/2	1450	25	22 1/4	60 1/2	80
30	.....	.....	HG	Al	.....	.750x2.81	3	AS	6 5/16	.....	CNS	N	1.87x2.75	4	.....	.....	abe	7/8–18	Zen	1	440	17 1/2	14 3/8	40 1/2	81
30	.....	.....	HG	Al	.....	1.00x3.50	3	AS	8	.....	CNS	N	1.75x2.75	3	2.00x1.56	2.00x1.62	abe	7/8–18	Zen	1 1/4	690	21 7/8	16	51 1/4	82
45	.....	.....	HG	CI	160	1.37x4.62	4	AS	12 1/4	96	CNS	N	2.00x1.50	3	2.00x2.18	2.00x2.62	abe	7/8–18	Zen	1 1/2	1700	25 3/4	22 1/4	68 1/2	83
45	.....	.....	HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	1.87x2.75	5	2.25x5.00	2.25x4.00	abe	7/8–18	Zen	1 1/2	1750	25 3/4	22 1/4	68 1/2	84
45	E	Spec	HG	CI	186	1.50x5.00	4	AS	13 1/4	172	CNS	N	1.87x2.75	5	2.25x5.00	2.25x4.00	.....	7/8–18	Zen	.....	2100	29 1/4	24	74 1/4	85
45	E	Spec	HG	CI	204	1.50x5.50	4	AS	13 1/4	172	CNS	N	2.75x2.75	5	3.00x3.50	3.00x3.50	abce	7/8–18	Zen	.....	2290	29 1/4	24	75	86
30	.....	.....	HG	Al	.....	1.00x3.50	3	AS	8	.....	CNS	N	2.75x2.75	5	3.00x3.50	3.00x3.50	abce	7/8–18	Zen	1 1/4	830	21 1/8	17	51	87
30	E	Spec	HG	Al	40	1.00x3.50	4	DFS	8	36	Spec	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abe	7/8–18	Zen	1 1/2	820	21 1/8	25	51	88
45	.....	.....	HG	CI	96	1.37x3.87	4	Dur	12 1/4	68	CNS	N	2.00x1.50	7	2.50x1.31	2.50x1.12	abe	7/8–18	Hol	.....	1700	24 1/2	27 3/4	68	89
45	.....	.....	HG	CI	104	1.37x4.12	4	Dur	12 1/4	68	CNS	N	2.25x2.37	7	2.75x3.25	2.75x2.12	abce	7/8–18	Hol	.....	1700	24 1/2	27 3/4	68	90
45	.....	.....	HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	2.25x2.37	7	2.75x3.25	2.75x2.12	abce	7/8–18	Zen(2)	1 1/2	2500	26 1/2	22 3/4	90 1/2	91
45	.....	.....	HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	2.12x2.75	7	2.62x5.00	2.62x4.00	abe	7/8–18	Zen(2)	1 1/2	2500	26 1/2	23 3/4	88 1/2	92
45	.....	.....	HG	CI	176	1.50x5.00	4	AS	13 1/4	164	CNS	N	2.12x2.75	7	2.62x5.00	2.62x4.00	abe	7/8–18	Hol	.....	2435	24 1/2	29 3/4	78 1/2	93
45	.....	.....	HG	CI	176	1.50x5.12	4	AS	13 1/4	164	CNS	N	2.75x2.75	7	3.00x3.37	3.00x3.25	abce	7/8–18	Hol	.....	2430	24 1/2	29 1/4	78 1/2	94
45	N	.....	HG	Al	.....	.....	3	DFS	.....	.....	CAS	Y	1.50x-.—	3	1.62x-.—	1.62x-.—	abc	7/8–18	Zen	1	.....	22	25 3/4	44 3/4	95
45	E	TA	HG	CAS	8	.688x2.37	3	.....	6 1/8	10	CAS	Y	1.70x1.41	3	2.10x1.62	2.10x2.00	abc	14 mm	Ford	.81	.....	21 1/4	28 3/4	44	96

(For abbreviations see pages 100-101)

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Lehman-Ford V-5	M, Ind	8-3 1/16x3 3/4	90-3250	85-3250	221.0	6.15	155-2200 (EA)	N	In	L	CNS	1.54	1.54			.292	.292	.311	.311
2	Lehman-Mercury M-5	M, Ind	8-3.185x3 3/4	100-3000	95-3000	239.0	6.15	170-2100 (EA)	D	In	L	CNS	1.54	1.54			.292	.292	.311	.311
3	Lehman-Zephyr Z-5	M, Ind	12-2 7/16x3 3/4	125-3500	120-3500	292.0	7.20	186-2000 (EA)	N	In	L	CNS	1.54	1.54			.292	.292	.311	.311
4	M-M Twin City (8) EE	Tr, Ind	4-3 5/8x4	26-1400	24-1400	165.1	5.75	107-1000 (BE)	N	Se	HH	Sil	1.46	1.46	1.25	1.25	.354	.354	.343	.343
5	M-M Twin City RE	Tr, Ind	4-3 5/8x4 1/2	34-1500	32-1500	185.7	5.75	124-1100 (BE)	N	Se	HH	Sil	1.46	1.46	1.25	1.25	.354	.354	.343	.343
6	M-M Twin City KEF	Tr, Ind	4-4 1/4x5	49-1275	47-1275	283.7	5.60	195-1150 (BE)	N	Se	I	Sil	1.71	1.59	1.50	1.37	.488	.488	.437	.437
7	M-M Twin City LE	Tr, Ind	4-4 5/8x6	64.5-1075	61-1075	403.2	5.25	304-975 (BE)	N	Se	I		1.84	1.71	1.62	1.50	.488	.488	.437	.437
8	M-M Twin City ME	Ind	4-8x9	152-650		1810.0	4.70	1250-300 (BE)	N	Se	I	Sil	3.34	3.34	3.00	3.00	.687	.687	.687	.683
9	M-M Twin City CE	Ind	6-4 1/4x5	72-1275		425.5	5.60	295-1100 (BE)	N	Se	I	Sil	1.71	1.59	1.50	1.37	.488	.488	.437	.437
10	M-M Twin City HE	Ind	6-4 5/8x6	92-1075		605.0	5.25	445-1000 (BE)	N	Se	I	Sil	1.84	1.71	1.62	1.50	.488	.488	.437	.437
11	M-M Twin City NE	Ind	6-8x9	220-650		2714.0	4.70	1780-450 (BE)	N	Se	I	Sil	3.34	3.34	3.00	3.00	.687	.687	.687	.683
12	Murray & Tregurtha OC-4	M	4-6 1/2x8		80-1000	1062.4	3.33	560-600 (EA)	N	Se	I	CNS	2.46	2.46	2.25	2.25	.500	.500	.437	.437
13	Murray & Tregurtha M-4	M	4-6 1/2x8		90-1000	1062.4	4.20	660-700 (EA)	N	Se	I	CNS	2.46	2.46	2.25	2.25	.500	.500	.437	.437
14	Murray & Tregurtha K-6	M	6-6 1/4x7 3/4		346-1650	1426.6	5.25	1110-1525 (EA)	N	Se	I	CNS	2.46	2.46	2.25	2.25	.375	.375	.437	.437
15	Murray & Tregurtha OC-6	M	6-6 1/2x8		140-1100	1593.6	3.33	910-600 (EA)	N	Se	I	CNS	2.46	2.46	2.25	2.25	.500	.500	.437	.437
16	Murray & Tregurtha M-6	M	6-6 1/2x8		175-1100	1593.6	4.20	882-695 (EA)	N	Se	I	CNS	2.46	2.46	2.25	2.25	.500	.500	.437	.437
17	Murray & Tregurtha OCX-6	M	6-7 1/4x8		175-1100	1931.4	4.00	1030-800 (EA)	N	Se	I	CNS	2.71	2.46	2.37	2.25	.531	.531	.437	.437
18	Oliver 60HC	Tr	4-3 1/8x3 1/2		21.2-1500	120.6	6.00	75-1000 (EA)	W	In	I	Sil	1.18	1.12	1.06	1.00	.281	.281	.375	.375
19	Oliver 80HC	Tr	4-4 1/4x5 1/4		46.1-1200	298.0	5.25	190-850 (EA)	W	In	I	Sil	2.00	1.75	1.75	1.50	.406	.406	.375	.375
20	Oliver 80KD	Tr	4-4 1/2x5 1/4		45-1200	334.0	4.23	190-850 (EA)	W	In	I	Sil	2.00	1.75	1.75	1.50	.406	.406	.375	.375
21	Oliver 90	Tr	4-4 3/4x6 1/4		56.7-1125	443.0	4.10	250-850 (EA)	W	In	I	Sil	2.31	2.31	2.00	2.00	.437	.437	.437	.437
22	Oliver 99	Tr	4-4 3/4x6 1/4		65-1125	443.0	5.04	295-850 (EA)	W	In	I	Sil	2.31	2.00	2.00	1.75	.437	.437	.437	.437
23	Oliver 70KD	Tr	6-3 1/4x4 3/8		31.3-1500	201.3	4.50	105-1150 (EA)	W	In	I	Sil	1.54	1.20	1.37	1.06	.390	.390	.375	.375
24	Oliver 70HC	Tr	6-3 1/4x4 3/8		36.3-1500	201.3	6.50	105-1150 (EA)	W	In	I	Sil	1.54	1.20	1.37	1.06	.390	.390	.375	.375
25	Reo GC-228	T	6-3 5/8x4 1/4	83-3200		228.0	6.20	177-1000 (BE)	N	In	L	Sil	1.78	1.62			.312	.312	.373	.373
26	Reo GC-245	T	6-3 1/2x4 1/4	89-3100		245.0	6.20	191-1000 (BE)	N	In	L	Sil	1.78	1.62			.312	.312	.373	.373
27	Reo GC-288	T	6-3 1/2x5	94-3000		288.0	6.00	221-1200 (BE)	N	In	L	Sil	1.78	1.62			.312	.312	.373	.373
28	Reo GC-310	T, B	6-3 5/8x5	101-3000		310.0	5.80	241- 900 (BE)	D§	In	L	Sil	1.78	1.62			.312	.312	.373	.373
29	Scripps 34	M	4-3 1/4x4		32-2200	134.0	5.20	92-2000 (BE)		In	L	Sil	1.48	1.35	1.25	1.12	.250	.250	.310	.310
30	Scripps 36	M	4-3 1/4x4		50-3200	134.0				In	L	Sil	1.48	1.35	1.25	1.12	.250	.250	.310	.310
31	Scripps F4	M	4-3 3/4x5		81-3000	220.0	6.10			In	L	Sil	1.93	1.93			.406	.406	.375	.375
32	Scripps 96A-97A	M	6-3 7/16x4 1/8		95-3000	221.0	5.85	187-1200 (BE)		In	L	Sil	1.60	1.39	1.43	1.12	.281	.281	.312	.312
33	Scripps F6	M	6-3 3/4x5		120-3000	331.0	6.10			In	L	Sil	1.93	1.93			.406	.406	.375	.375
34	Scripps 104A-105A	M	6-4x4 1/4		110-3000	320.0	5.63	239-1700 (BE)		In	L	Sil	1.75	1.62	1.50	1.37	.322	.322	.373	.373
35	Scripps 152-153	M	6-4 1/4x5 1/4		169-3000	447.0	6.20			Se	L	Sil	2.25	2.25			.375	.375	.437	.437
36	Scripps 154, 5, 6, 7	M	6-4 1/4x5 1/4		155-3000	447.0	6.20			Se	L	Sil	2.25	2.25			.375	.375	.437	.437
37	Scripps 162-163	M	6-4 1/2x5 3/4		166-2400	549.0	5.75			Se	L	Sil	2.37	2.28			.405	.375	.437	.437
38	Scripps 166-167	M	6-4 1/2x5 3/4		145-2200	549.0	5.20			Se	L	Sil	2.56	2.28			.405	.375	.437	.437
39	Scripps 168-169	M	6-4 1/2x5 3/4		175-2400	549.0	5.75			Se	L	Sil	2.37	2.28			.405	.375	.437	.437
40	Scripps 172A-173A	M	6-4 3/4x5 3/4		200-2400	611.0	5.20			Se	L	Sil	2.37	2.28			.405	.375	.437	.437
41	Scripps 176A-177A	M	6-4 3/4x5 3/4		155-2200	611.0	5.20			Se	L	Sil	2.56	2.28			.405	.375	.437	.437
42	Scripps 178-179	M	6-4 3/4x5 3/4		200-2400	611.0	5.75			Se	L	Sil	2.37	2.28			.405	.375	.437	.437
43	Scripps 202-203	M	6-5x5 3/4		212-2400	678.0	6.20			Se	L	Sil	2.56	2.28			.405	.375	.437	.437
44	Scripps 206-207	M	6-5x5 3/4		170-2200	678.0	5.75			Se	L	Sil	2.56	2.28			.405	.375	.437	.437
45	Scripps 208-209	M	6-5x5 3/4		225-2400	678.0	5.85			Se	L	Sil	2.50	2.37			.406	.375	.437	.437
46	Scripps 214-215	M	6-5x5 3/4		185-2000	678.0	5.75			Se	L	Sil	2.50	2.37			.406	.375	.437	.437
47	Scripps V43-90, V47-90	M	8-3 1/16x3 3/4		90-3600	221.0	6.16	154-2200 (BE)		In	L	Sil	1.53	1.53			.296	.296	.312	.312
48	Scripps V43M-100, V47M-100	M	8-3.185x3 3/4		100-3600	239.0	6.15	178-2200 (BE)		In	L	CNS	1.53	1.53			.292	.292	.311	.311
49	Scripps V63-130, V87-130	M	12-2 1/16x3 3/4		130-3600	305.0	6.70	232-2200 (BE)		In	L	CNS	1.53	1.53			.292	.292	.311	.311
50	Scripps 302-303	M	12-4 1/4x5 1/4		304-2400	894.0	6.20			Se	L	Sil	2.25	2.25			.375	.375	.437	.437
51	Scripps 304-305	M	12-4 1/4x5 1/4		250-2400	894.0	6.20			Se	L	Sil	2.25	2.25			.375	.375	.437	.437
52	Scripps 306-307	M	12-4 1/4x5 1/4		280-2400	894.0	6.20			Se	L	Sil	2.25	2.25			.375	.375	.437	.437
53	Sterling Petrel L-6	M,T,Tr,B,Ind	6-5 1/4x6		115-1200	780.0	4.30	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
54	Sterling Petrel L-6	M,T,Tr,B,Ind	6-5 1/4x6		145-1500	780.0	4.68	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
55	Sterling Petrel L-6	M,T,Tr,B,Ind	6-5 1/4x6		145-1500	780.0	4.68	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
56	Sterling Petrel L-6-8	M,T,Tr,B,Ind	6-5 1/4x6		180-1800	780.0	5.00	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
57	Sterling Petrel Reduction-L	M,T,Tr,B,Ind	6-5 1/4x6		175-1800	780.0	4.68	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
58	Sterling Petrel L-6	M,T,Tr,B,Ind	6-5 1/4x6		200-2000	780.0	5.54	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
59	Sterling Petrel L-6	M,T,Tr,B,Ind	6-5 1/4x6		225-2200	780.0	5.50	500-1400 (EA)	N	Se	L	Sil	2.25	2.25			.455	.455	.437	.437
60	Sterling Dolphin-Med. GRM-6	Tr, M, Ind	6-5 3/4x6 3/4		165-1200	1051.6	3.85	785-1200 (EA)	N	Se	I	Sil	1.87	1.87			.375	.375	.437	.437
61	Sterling Dolphin 6-GR-6	Tr, M, Ind	6-5 3/4x6 3/4		225-1550	1051.6	4.08	785-1200 (EA)	N	Se	I	Sil	1.87	1.87			.375	.375	.437	.437
62	Sterling Dolphin 6-GRS-6	Tr, M, Ind	6-5 3/4x6 3/4		300-2000	1051.6	4.70	785-1200 (EA)	N	Se	I	Sil	1.87	1.87			.375	.375	.437	.437
63	Sterling Viking 11 T-6	Tr, M, Ind	6-8x9		190- 600	2714.3	3.93	1900-1000 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.562	.562
64	Sterling Viking 11 T-6	Tr, M, Ind	6-8x9		300- 900	2714.3	4.18	1900-1000 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.562	.562
65	Sterling Viking 11 T-6	Tr, M, Ind	6-8x9		425-1200	2714.3	4.18	1900-1000 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.562	.562
66	Sterling Dolphin-Med. GRM-8	Tr, M, Ind	8-5 3/4x6 3/4		220-1200	1402.2	3.85	1055-1300 (EA)	N	Se	I	Sil	1.87	1.87			.375	.375	.437	.437
67	Sterling Dolphin 8-GR-8	Tr, M, Ind	8-5 3/4x6 3/4		300-1550	1402.2	4.08	1055-1300 (EA)	N	Se	I	Sil	1.87	1.87			.375	.375	.437	.437
68	Sterling Viking 11 8-T-8	Tr, M, Ind	8-8x9		250- 600	3619.0	3.93	2520-1050 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.557	.557
69	Sterling Viking 11 8-T-8	Tr, M, Ind	8-8x9		400- 900	3619.0	4.18	2520-1050 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.557	.557
70	Sterling Viking 11 8-T-8	Tr, M, Ind	8-8x9		565-1200	3619.0	4.18	2520-1050 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.557	.557
71	Sterling Viking 11TC68	M	8-8x9		600-1200	3619.0	5.00	2626-1200 (EA)	W	Se	I	Sil	2.59	2.59			.556	.556	.557	.557
72	Sterling Admiral 1/2V-2500-6	M	12-6 3/16x6 1/2		1200-2350	2500.0	6.00	(EA)	W	Se	I	CNS x	2.18	2.21	2.00	2.00	.437	.497	.403	.559
73	Sterling R. Admiral V-2500-7	M	12-6 3/16x6 1/2		800-2200	2500.0	6.00	(EA)	W	Se	I	CNS x	2.18	2.21	2.00	2.00	.437	.497	.403	.559
74	Thorobred (10) K	M	1-3 3/4x4 3/4	6-1000	5-1000	52.5	4.00		N	Se	L	NCI	1.62	1.62	1.43	1.43	.300	.300	.375	.375
75	Thorobred KK	M	2-3 3/4x4 3/4	11-1100	10-1100	105.0	4.00	54-800 (EA)	N	Se	L	NCI	1.62	1.62	1.43	1.43	.300	.300	.375	.375
76	Thorobred Meteor-CK	M	4-2 1/2x3 1/2	18-2800	17-2400	61.3	5.70	40-1800 (EA)	N	Se	L	Sil	1.12	.937	1.00	.812	.228	.250	.312	.312
77	Thorobred DS	M	4-2 3/4x4	19-1800	16-1800	95.0	4.66	53-1300 (EA)	N	In	L	Sil	1.46	1.34	1.31	1.18	.250	.250	.312	.312
78	Thorobred Arrowhead, Jr.	M	4-3 1/4x4	38-2600	35-2600	133.0	5.58	92-1200 (EA)	N	In	L	Sil	1.34	1.34	1.18	1.18	.281	.281	.312	.312
79	Thorobred Arrowhead	M	4-3 5/8x4 1/2	40-2200	37-2200	186.0	5.50	128-900 (EA)	N	In	L	Sil	1.56	1.56	1.37	1.37	.281	.281	.375	.375
80	Thorobred AA	M	4-3 3/4x4 3/4	27-1400	24-1400	210.0	4.00	113-700 (EA)	N	Se	L	NCI	1.62	1.62	1.43	1.43	.300	.300	.375	.375
81	Thorobred F	M	4-4 1/16x5	39-1400	36-1400	259.0	4.00	142-1000 (EA)	N	Se	L	NCI	1.93	1.93	1.75	1.75	.300	.300	.375	.375
82	Thorobred B	M	4-4 1/2x5	47-1800	44-1800	318.0	4.00	180-900 (EA)	N	Se	L	CNS	2.09	2.09	1.93	1.93	.300	.300	.375	.375
83	Thorobred BB-4	M	4-4 1/2x6	59-1600	56-1600	382.0	4.00	224-1100 (EA)	N	Se	L	Sil	2.34	2.34	2.12	2.12	.300	.300	.437	.437
84	Thorobred BC-4	M	4-5x7	60-1200	56-1200	550.0	4.00	292-900 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
85	Thorobred BCS-4	M	4-5 3/4x7	75-1100	71-1100	727.0	4.00	409-900 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
86	Thorobred BC-Super-4	M	4-6x7	82-1100	78-1100	791.7	4.00	465-700 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
87	Thorobred Hiawatha	M	6-3 3/4x4 1/4	85-2800	82-2800	282.0	5.70	185-1100 (EA)	N	In	L	Sil	1.68	1.43	1.50	1.25	.375	.375	.375	.375
88	Thorobred Arrow-Super-6	M	6-4 1/4x4 3/4	98-2500	95-2500	404.0	5.38	286-800 (EA)	N	In	L	Sil	1.93	1.43	1.75	1.25	.375	.375	.375	.375
89	Thorobred BB-6	M	6-4 1/2x6	84-1725	80-1725	572.5	4.00	379-900 (EA)	N	Se	L	Sil	2.34	2.34	2.12	2.12	.300	.300	.437	.437
90	Thorobred BBS-6	M	6-5x6	105-1500	101-1500	707.0	4.00	420-900 (EA)	N	Se	L	Sil	2.34	2.34	2.12	2.12	.300	.300	.437	.437
91	Thorobred BC-6	M	6-5x7	94-1100	90-1100	825.0	4.00	452-1000 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
92	Thorobred BCS-6	M	6-5 3/4x7	116-1100	112-1100	1091.0	4.00	596-850 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
93	Thorobred BC-Super-6	M	6-8x7	128-1100	124-1100	1187.5	4.00	630-875 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
94	Universal Fisherman-WM	M	1-4 5/16x4 1/2		8-1200	67.6	4.60		N	In	L	CNS	1.87	1.87			.250	.250	.375	.375
95	Universal Blue Jacket-AFTL	M	2-3x3 1/2		12-2200	49.5	5.75		N	In	L	CNS	1.50	1.50			.250	.250	.375	.375
96	Universal Utility Four-BN	M	4-2 3/4x4		25-2500	95.0	5.00		N	In	L	CNS	1.12	1.12			.234	.234	.312	.312

(For abbreviations see pages 100-101)

Engines—*Continued*

VALVES				PISTONS			CONNECTING RODS				CRANKSHAFT									CARBURETOR			OVERALL DIMENSIONS (In.)			
Seats														MAIN BEARINGS												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Spark Plug—Thread Size	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Line Number
45	Bo	TA	HG	CAS	12	.750x2.85	3	.....	7	17	CAS	Y	2.00x1.94	3	2.50x1.72	2.50x2.25	abc	14 mm	Ford	.94	.....	22¾	30½	46¼	1
45	Bo	TA	HG	CAS	13	.750x2.97	3	.....	7	17	CAS	Y	2.14x1.75	3	2.50x1.72	2.50x2.25	abc	14 mm	Ford	.94	.....	22¾	30½	46½	2
45	E	TA	HG	CAS	11	.750x2.61	3	.....	7 11/16	22	CAS	Y	2.13x1.75	4	2.40x1.84	2.40x2.25	abc	14 mm	Ford	1	.....	25	31½	59½	3
45	E	CNM	HG	CI	55	1.00x3.00	4	1040	9	51	1045	N	2.62x1.28	2	SAE212(9)	3.00x2.18	abet	14 mm	Sch	1	640	18½	36½	34	4
45	E	CNM	HG	CI	54	1.00x3.00	4	1040	9	51	1045	N	2.62x1.28	2	BCA3I3(9)	BCA3I4(9)	bet	14 mm	Sch	1	650	18½	36½	34	5
45	E	CNM	HG	CI	80	1.25x3.87	4	1040	10	97	1045	N	2.57x2.21	3	2.90x2.18	2.90x3.50	abcegt	7/16-18	Sch	1	1140	29¼	41½	41½	6
45	E	CNM	HG	CI	104	1.25x4.25	4	1040	11½	97	1045	N	2.75x2.09	3	2.90x2.15	2.90x3.17	abceg	7/16-18	Sch	1¼	1275	24½	60	45½	7
45	E	CNM	HG	CI	598	2.18x7.18	4	1045	20½	656	1045	N	3.50x4.37	5	3.50x5.21	3.50x6.37	abcdegt	7/16-18	Zen	2	4700	38½	68¼	72	8
45	E	CNM	HG	CI	80	1.25x3.87	4	1040	10	97	1045	Y	2.57x2.21	4	2.90x2.18	2.90x3.50	abcegt	7/16-18	Zen	1½	1850	28¾	45 5/16	59¼	9
45	E	CNM	HG	CI	104	1.25x4.25	4	1045	11½	97	1045	Y	2.75x2.09	4	2.90x2.18	2.90x3.50	abcegt	7/16-18	Zen	1½	1950	28¾	43 5/16	59¼	10
45	E	CNM	HG	CI	598	2.18x7.18	4	1045	20½	624	1045	N	3.81x4.25	7	4.00x5.21	4.00x6.37	abcdegt	7/16-18	Zen(2)	1¾	6650	37½	74	97	11
30	N	.....	HG	Al	.....	1.37x4.50	6	3135	15½	180	CNS	N	2.56x3.16	5	2.56x3.48	2.56x4.25	abcdefg	18 mm	Sho(2)	2	2950	32⅝	54 7/16	78 7/16	12
30	N	.....	HG	Al	182	1.25x6.18	5	3135	17 5/16	212	CNS	N	2.56x3.16	5	2.56x3.48	2.56x4.25	abcdefg	18 mm	Hol	1½	2450	32⅝	49½	78 7/16	13
30	N	.....	HG	Al	140	1.37x5.62	5	3135	15½	184	CNS	N	2.56x3.15	7	2.56x1.50	2.56x4.25	abcdefg	18 mm	Str	2	2400	27⅞	51 7/16	98¼	14
30	N	.....	HG	Al	.....	1.37x4.50	6	3135	15½	180	CNS	N	2.56x3.16	7	2.56x3.48	2.55x4.25	abcdefg	18 mm	Sho(3)	2	3800	32⅝	54 7/16	99 7/16	15
30	N	.....	HG	Al	182	1.25x6.18	5	3135	17 5/16	212	CNS	N	2.56x3.16	7	2.56x3.48	2.56x4.25	abcdefg	18 mm	Zen(2)	1½	3050	32⅝	49½	98 7/16	16
30	N	.....	HG	Al	.....	1.37x4.50	6	3135	15½	180	CNS	N	2.56x3.16	7	2.56x3.48	2.56x4.25	abcdefg	18 mm	Sho(3)	2½	4050	35	52¼	98 7/16	17
45	E	CA	HG	CI	45	.875x2.70	4	1045	6	29	1045	N	2.00x1.37	3	2.25x1.43	2.25x1.43	a	18 mm	Sch	1	345	17	24½	28½	18
45	E	CA	HG	CI	83	1.31x3.81	4	1045	10½	68	1045	N	2.37x2.12	3	2.37x2.12	2.37x2.75	abcde	7/16-18	Sch	1¼	850	21¼	34¾	37¾	19
45	E	CA	HG	CI	94	1.31x4.06	4	1045	10½	68	1045	N	2.37x2.12	3	2.37x2.12	2.37x2.75	abcde	7/16-18	Sch	1¼	850	21¼	24¾	37¾	20
45	E	CA	HG	CI	109	1.50x4.37	4	1040	12½	145	1045	N	2.75x2.50	3	3.00x2.81	3.00x3.75	abcde	7/16-18	Sch	1¼	1200	24¼	44	44¼	21
45	E	CA	HG	CI	109	1.50x4.37	4	1040	12½	145	1045	N	2.75x2.50	3	3.00x2.81	3.00x3.75	abcde	7/16-18	Sch	1¼	1200	24¼	44	44¼	22
(h)	E	CA	HG	CI	39	.859x2.62	4	1030	7	28	1045	N	1.93x1.12	4	2.25x1.23	2.25x1.62	ab	18 mm	Zen	1¼	.....	17½	29	31½	23
(h)	E	CA	HG	CI	39	.859x2.62	4	1030	7	28	1045	N	1.93x1.12	4	2.25x1.23	2.25x1.62	ab	18 mm	Zen	1	530	17½	29	31½	24
45	E	.....	Ch	Al	23	.983x2.90	4	1035	10½	50	1045	Y	2.19x1.50	'	2.62x1.94	2.62x2.47	abcde	14 mm	Zen	1¼	758*	19¼	30¼	38¾	25
45	E	.....	Ch	Al	26	.983x3.03	4	1035	10½	50	1045	Y	2.19x1.50	7	2.62x1.94	2.62x2.47	abcde	14 mm	Zen	1¼	763*	19¼	30¼	38¾	26
45	E	.....	Ch	Al	26	.983x3.03	4	1035	10½	50	1045	Y	2.19x1.50	7	2.62x1.94	2.62x2.47	abcde	14 mm	Zen	1½	785*	19¼	30⅝	38¾	27
45	E	.....	Ch	Al	29	.983x3.13	4	1035	10½	50	1045	Y	2.19x1.50	7	2.62x1.94	2.62x2.47	abcde	14 mm	Zen	1½	785*	19¼	30⅝	38¾	28
30	.....	.....	HG	CI	29	.750x2.81	3	3140	6 11/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abr	7/16-18	Zen	1¼	410*	15½	21¾	32⅝	29
30	.....	.....	HG	Al	.....	.750x2.81	3	AS	6 11/16	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	abr	7/16-18	Zen	1¼	410*	15½	21¾	32⅝	30
45	.....	.....	HG	Al	33	1.12x3.25	4	Dur	10½	41	NS	N	2.18x1.87	3	2.25x2.62	2.25x2.62	abc	18 mm	Str	1¼	660*	23	28 1/16	45¼	31
30	.....	.....	HG	Al	.....	.875x2.90	4	CS	7	26	CS4	N	2.00x1.25		2.50x1.31	2.50x1.93	abr	14 mm	Zen	1½	675*	21	23¼	41½	32
45	.....	.....	HG	Al	33	1.12x3.25	4	Dur	10½	41	NS	Y	2.18x1.87	4	2.25x2.62	2.25x2.62	abc	18 mm	Zen	1½	930*	19¾	28 11/16	56½	33
45	.....	.....	HG	Al	40	1.00x3.51	4	1035	8	37	1045	N	2.00x1.50	7	2.50x1.31	2.50x2.12	abr	7/16-18	Zen	1¾	830*	21	25½	49¾	34
45	E	Tun	HG	Al	49	1.25x3.68	4	AS	10 7/16	70	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	abc	18 mm	Hol	2	1050*	27¾	32 1/16	56¾	35
45	E	Tun	HG	Al	49	1.25x3.68	4	AS	10 7/16	70	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	abc	18 mm	Str	2	1150*	24¾	29 1/16	56¾	35
45	.....	.....	HG	Al	50	1.37x3.84	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Hol	1½	1325*	28¼	36 1/16	66	37
45	.....	.....	HG	Al	50	1.37x3.84	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Sch	1½	1420*	33½	33 1/16	66	38
45	.....	.....	HG	Al	50	1.37x3.84	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Zen	2	1325*	33½	33 1/16	66	39
45	.....	.....	HG	Al	56	1.37x4.00	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Hol	2	1325*	26¼	37 1/16	66	40
45	.....	.....	HG	Al	56	1.37x4.00	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Sch	1½	1420*	33½	33 1/16	66	41
45	.....	.....	HG	Al	56	1.37x4.00	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Hol	2	1325*	33½	33 1/16	66	42
45	.....	.....	HG	Al	62	1.37x4.00	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Hol	2	1325*	26¼	37 1/16	66	43
45	.....	.....	HG	Al	62	1.37x4.00	4	AS	11¼	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	ab	18 mm	Sch	1½	1420*	33½	33 1/16	66	44
45	.....	.....	HG	Al	56	1.37x4.00	4	AS	11¼	85	CS	Y	2.87x2.25	4	3.00x3.00	3.00x3.62	abr	18 mm	Zen(2)	2	1325*	25	33 1/16	66	45
45	.....	.....	HG	Al	56	1.37x4.00	4	AS	11¼	85	CS	Y	2.87x2.25	4	3.00x3.00	3.00x3.62	abr	18 mm	Zen(2)	2	1450*	25	33 1/16	66	46
45	Bo	Tun	HG	Al	.....	.750x2.84	3	AS	7	17	CS	Y	2.00x1.75	3	2.50x1.37	2.00x1.96	abc	18 mm	Str(2)	1	660*	23½	32⅝	42 5/16	47
45	Bo	Tun	HG	CAS	.....	.750x2.84	3	DFS	7	18	CAS	Y	2.14x1.75	3	2.50x1.37	2.00x1.96	abc	14 mm	Hol	1	700*	23½	32 1/16	43 5/16	48
45	Bo	Tun	HG	CAS	15	.750x2.48	3	DFS	7 1/32	22	CAS	Y	2.12x1.57	4	2.40x1.83	2.40x2.25	abc	14 mm	Str	1	.....	25⅝	31 1/16	49 11/16	49
45	.....	.....	HG	Al	49	1.25x3.68	4	AS	10 7/8	164	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	abc	18 mm	Hol	2	1700*	35	33 1/32	58 1/32	50
45	.....	.....	HG	Al	49	1.25x3.68	4	AS	10 7/8	164	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	abc	18 mm	Str(2)	2	1700*	33¼	30 1/16	58 1/32	51
45	.....	.....	HG	Al	49	1.25x3.68	4	AS	10 7/8	164	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	abc	18 mm	Str(2)	2	1700*	33¼	30 1/16	58 1/32	52
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1½	1400	27½	33½	71¾	53
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1½	1400	27½	33½	71¾	54
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1½	1850	27½	33½	71¾	55
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1¾	1400	27½	33½	71¾	56
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1½	2000	27 1/16	23	61 1/16	57
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1¾	2000	27½	33½	71¾	58
45	E	T-12	HG	Al	94	1.43x4.37	4	CS	12½	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdef	7/16-18	Zen(2)	1½	2000	27½	33½	71¾	59
60	N	.....	HG	Al	100	1.25x5.12	3	CS	14	130	CNS	Y	2.50x3.00	4	2.50x4.43	2.50x4.43	abcdef	7/16-18	Zen(2)	1¾	2250	30½	45½	87 1/16	60
60	N	.....	HG	Al	100	1.25x5.12	3	CS	14	130	CNS	Y	2.50x3.00	4	2.50x4.43	2.50x4.43	abcdef	7/16-18	Zen(2)	1¾	2000	30½	45 1/16	87 1/16	61
60	N	.....	HG	Al	110	1.25x5.12	3	CS	14	130	CNS	Y	2.50x3.00	4	2.50x4.43	2.50x4.43	abcdef	7/16-18	Zen(2)	2½	2175	30½	45 1/16	87 1/16	62
45	E	T-12	Ch	Al	280	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	7	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(3)	2½	7100	40⅛	72¾	121⅜	63
45	E	T-12	Ch	Al	290	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	7	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(3)	2½	7100	40⅛	72¾	121⅜	64
45	E	T-12	Ch	Al	290	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	7	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(3)	2½	7100	40⅛	72¾	121⅜	65
60	N	.....	HG	Al	100	1.25x5.12	3	CS	14	130	CNS	Y	2.50x3.00	5	2.50x4.43	2.50x4.43	abcdef	7/16-18	Zen(2)	2½	3400	30½	45 1/16	104 1/16	66
60	N	.....	HG	Al	100	1.25x5.12	3	CS	14	130	CNS	Y	2.50x3.00	5	2.50x4.43	2.50x4.43	abcdef	7/16-18	Zen(2)	2½	3400	30½	45 1/16	104 1/16	67
45	E	T-12	Ch	Al	280	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(4)	2½	9000	40⅛	72¾	142⅜	68
45	E	T-12	Ch	Al	290	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(4)	2½	9000	40⅛	72¾	142⅜	69
45	E	T-12	Ch	Al	290	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(4)	2½	9000	40⅛	72¾	142⅜	70
45	E	T-12	Ch	Al	.....	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdef	7/16-18	Zen(4)	2½	9900	44	64	144½	71
45	Bo	JM	HG	Al	96	1.62x5.90	6	4340	‡‡	48	4140	Y	3.50x2.87	7	4.00x3.00	4.00x3.00	abce	5/8-24	Str	.....	4200	50	50	108⅝	72
45	Bo	JM	HG	Al	96	1.62x5.90	6	4340	‡‡	48	4140	Y	3.50x2.87	7	4.00x3.00	4.00x3.00	abce	5/8-24	Str	.....	3950	50	50	108⅝	73
45	N	.....	HG	CIA	64	1.10x3.25	3	1045	8½	43	1045	N	1.50x2.12	2	1.50x3.00	1.50x3.00	Splash	7/16-18	Str	¾	210	19¼	22 1/8	21⅝	74
45	N	.....	HG	CIA	64	1.10x3.25	3	1045	8½	43	1045	N	1.50x2.12	2	1.50x3.00	1.50x3.00	Splash	7/16-18	Str	1	415	19½	22⅛	36¼	75
45	N	.....	HG	Al	9	.625x2.12	3	1045	6	14	1045	N	1.43x1.25	2(9)	ND1207	ND1207	ace	14 mm	Str	¾	240	18¼	19⅛	27 1/16	76
45	N	.....	HG	CIA	19	.625x2.40	3	1045	8	27	1045	N	1.75x1.50	2	1.76x2.81	1.73x2.87	abe	7/16-18	Str	¾	330	15⅞	21⅛	38⅛	77
45	N	.....	HG	CI	30	.875x2.75	3	1045	7¼	29	1045	N	1.75x1.25	3	2.12x1.43	2.12x1.18	abcde	18 mm	Str	1	490	21⅜	24⅛	35	78
45	E	CA	HG	CI	45	1.10x3.06	4	1045	8¾	46	1045	N	2.00x1.50	3	2.00x2.50	2.00x1.87	abcde	7/16-18	Str	1	610	19½	26¼	41	79
45	N	.....	HG	CIA	64	1.10x3.25	3	1045	8½	43	1045	N	1.50x2.12	3	1.50x3.00	1.50x3.00	abe	7/16-18	Str	1	620	19½	22 1/16	46⅝	80
45	N	.....	HG	CIA	69	1.10x3.56	4	1045	10⅝	66	1045	N	2.00x2.25	3	2.00x4.18	2.00x3.50	abe	7/16-18	Str	1¼	830	20¼	26 11/16	54⅝	81
45	N	.....	HG	CIA	89	1.10x3.93	4	1045	10⅝	66	1045	N	2.00x2.25	3	2.00x4.18	2.00x3.50	abe	7/16-18	Str	1½	830	20¼	26 11/16	54⅝	82
45	N	.....	HG	CIA	82	1.25x3.87	4	1045	11⅝	87	1045	N	2.56x2.25	5	2.56x4.25	2.56x4.25	abce	7/16-18	Str	1½	1175	22¾	27 1/16	59 1/16	83
45	N	.....	HG	CIA	126	1.43x4.68	4	1045	13¼	168	1045	N	2.56x3.00	5	2.62x4.50	2.62x4.50	abcde	7/16-18	Str	2	1720	25⅞	37⅝	74 1/16	84
45	N	.....	HG	CIA	150	1.43x5.25	4	1045	13¼	168	1045	N	2.56x3.00	5	2.62x4.50	2.62x4.50	abcde	7/16-18	Str	2	1730	25⅞	37⅝	74 1/16	85
45	N	.....	HG	CIA	190	1.43x5.50	4	1045	13¼	168	1045	N	2.56x3.00	5	2.62x4.50	2.62x4.50	abcde	7/16-18	Str	2	1740	25⅞	37⅝	74 1/16	86
45	E	CA	HG	Al	37	1.00x3.50	4	1045	8	40	1045	N	2.00x1.50	7	2.62x2.00	2.62x1.25	abcde	18 mm	Str	1¼	1000	22½	28¼	53 11/16	87
45	E	CA	HG	Al	48	1.00x4.00	4	1045	8¾	48	1045	N	2.25x1.50	7	2.62x2.75	2.62x1.62	abcde	14 mm	Str	1¼	1185	20¼	27⅛	57 1/16	88
45	N	.....	HG	CIA	82	1.25x3.87	4	1045	11⅝	87	1045	N	2.56x2.25	7	2.56x4.25	2.56x4.25	abce	7/16-18	Str	1½	1475	23⅝	33¼	72 1/16	89
45	N	.....	HG	CIA	106	1.25x4.31	4	1045	11⅝	87	1045	N	2.56x2.25	7	2.56x4.25	2.56x4.25	abce	7/16-18	Str	2	1565	24½	33¼	72⅝	90
45	N	.....	HG	CIA	126	1.43x4.68	4	1045	13¼	168	1045	N	2.56x3.00	7	2.62x4.50	2.62x4.50	abcde	7/16-18	Str	2	2330	27½	37⅝	91⅛	91
45	N	.....	HG	CIA	150	1.43x5.25	4	1045	13¼	168	1045	N	2.56x3.00	7	2.62x4.50	2.62x4.50	abcde	7/16-18	Str	2	2360	27½	37⅝	91⅛	92
45	N	.....	HG	CIA	190	1.43x5.50	4	1045	13¼	168	1045	N	2.56x3.00	7	2.62x4.50	2.62x4.50	abcde	7/16-18	Str	2	2380	27½	37⅝	91⅛	93
45	N	.....	HG	CI	.....	1.00x3.75	3	AI	8½	.....	CS	Y	2.00x2.00	2	2.00x2.00	2.00x2.00	Splash	18 mm	Str	5/8	200	15 1/16	24⅝	17 1/16	94
45	N	.....	HG	Als	15	.750x2.56	4	CS	7¼	26	CS	Y	1.75x1.37	2	1.75x1.87	1.75x2.00	abce	18 mm	Zen	5/8	300	20 1/16	22⅝	28 1/16	95
45	N	.....	HG	CI	19	.625x2.44	3	CS	7½	22	CS	N	1.50x1.75	2	1.50x2.75	1.50x2.75	abce	18 mm	Zen	1	347	17 1/16	21 1/16	34 11/16	96

(For abbreviations see pages 100-101)

American Gasoline

Line Number	ENGINE MAKE AND MODEL	Designed for	Number or Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft., with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Universal.....Flexifour-FA	M	4-3x3½	.....	40-3500	99.0	5.00	.....	N	In	L	Sil	1.50	1.50	.....	.....	.312	.312	.375	.375
2	Universal.....Superfour-LSG	M	4-3¼x4½	.....	50-3000	149.3	5.70	.....	N	Se	L	CNS	1.37	1.37	.....	.....	.312	.312	.375	.375
3	Universal....American Six-AMS	M	6-3x3½	.....	60-3500	148.5	6.00	.....	N	In	L	Sil	1.50	1.50	.....	.....	.312	.312	.375	.375
4	Universal.....Cruiser Six-HCS	M	6-3½x4½	.....	90-3000	280.0	5.75	.....	N	Se	L	Sil	1.50	1.50	.....	.....	.312	.312	.375	.375
5	Universal.....Sea Lion Six-LHS	M	6-3½x4½	.....	110-3400	280.0	5.75	.....	N	Se	L	Sil	1.50	1.50	.....	.....	.312	.312	.375	.375
6	Universal...Cruiser Eight-GCE	M	8-3½x4½	.....	125-3000	347.0	5.75	.....	N	Se	L	Sil	1.50	1.50	.....	.....	.328	.328	.375	.375
7	Universal...Sea Lion Eight-LCE	M	8-3½x4½	.....	141-3400	347.0	5.75	.....	N	Se	L	Sil	1.50	1.50	.....	.....	.328	.328	.375	.375
8	Vimalert.....M-12	M	12-5x7	.....	420-2000	1650.0	6.25	1236-1400 (BE)	N	Se	I	Sil	2.73	2.59	2.25	2.25	.437	.375	.435	.435
9	Vimalert.....Duplex Unit	M	Note—Unit is compos		ed of two	Mode	l M-1	2 Engines.....	Pla	ced	end	to end,	with	a gea	r box	betw	een.	driv	ing on	e
10	Vimalert.....1V-2500-2	M	12-5⅜x6½	.....	1200-2300	2500.0	5.80	.....	W	Se	I	CNS	2.20	2.21	1.95	1.96	.500	.500	.403	.559
11	Waukesha.....(12) (H) 150	C, Ind	2-3x2¾		11-3200	39.0	5.60	19-2400 (EA)	N	In	L	Sil	1.37	1.12	1.25	1.00	.300	.300	.312	.312
12	Waukesha.....(12) ICK	M, Ind	4-2½x3⅛	18-2600	14-2000	61.3	5.70	40-1700 (BE)	N	Se	L	Sil	1.12	.937	1.00	.812	.228	.250	.312	.312
13	Waukesha.....(12) FCS	Tr, Ind	4-2¾x4	25-2600	17-1800	94.0	4.85	68-1000 (BE)	N	In	L	Sil	1.34	1.34	1.18	1.18	.281	.281	.312	.312
14	Waukesha.....(12) FC	T, Tr, Ind	4-3¼x4	35-2600	25-1800	133.0	5.58	91-1225 (BE)	N	In	L	Sil	1.34	1.34	1.18	1.18	.281	.281	.312	.312
15	Waukesha.....(12) 160	Ind	4-3⅝x3½	27-1800	.....	120.5	6.00	85-1200 (BE)	W	In	I	Sil	1.18	1.12	1.06	1.00	.281	.281	.375	.375
16	Waukesha.....(12) XAH	T, Ind	4-3⅝x4½	42-2200	33-1800	186.0	5.50	128-900 (BE)	N	In	L	Sil	1.56	1.56	1.37	1.37	.302	.275	.375	.375
17	Waukesha.....(12) 130GS	T, Tr, Ind	4-3¾x5	50-2200	36-1500	221.0	6.12	144-800 (BE)	W	In	I	Sil	1.84	1.40	1.62	1.25	.445	.453	.434	.434
18	Waukesha.....(12) 130GL	T, Tr, Ind	4-4x5	53-2200	41-1500	251.0	5.95	164-800 (BE)	W	In	I	Sil	1.84	1.40	1.62	1.25	.445	.453	.434	.434
19	Waukesha.....(12) VIM	Tr, Ind	4-4¼x5¼	52-1600	45-1400	298.0	4.23	200-1000 (BE)	W	In	I	Sil	2.00	1.75	1.75	1.50	.400	.400	.375	.375
20	Waukesha.....(12) VIK	Tr, Ind	4-4½x5¼	58-1600	50-1400	334.0	4.30	224-900 (BE)	W	In	I	Sil	2.00	2.00	1.75	1.75	.400	.400	.375	.375
21	Waukesha.....(12) VRZG	T, Tr, Ind	4-4⅝x5¼	64-1600	56-1400	353.0	6.10	241-1100 (BE)	W	In	I	Sil	2.00	1.75	1.75	1.50	.450	.400	.375	.375
22	Waukesha.....(12) CHK	Tr, Ind	4-5⅛x6¼	79-1400	67-1050	516.0	4.20	375-700 (BE)	W	In	I	Sil	2.37	2.37	2.12	2.12	.437	.437	.437	.437
23	Waukesha.....(11) 6BL	T, B, Ind	6-3½x4¼	72-2800	51-2000	245.0	5.70	165-1300 (BE)	N	In	L	Sil	1.68	1.43	1.50	1.25	.375	.375	.375	.375
24	Waukesha.....(11) 6BM	T, B, Ind	6-3⅝x4¼	77-2800	54-2000	263.0	5.70	178-1100 (BE)	N	In	L	Sil	1.68	1.43	1.50	1.25	.375	.375	.375	.375
25	Waukesha.....(11) 6BK	T, B, Ind	6-3¾x4¼	82-2800	59-2000	282.0	5.70	189-1100 (BE)	N	In	L	Sil	1.68	1.43	1.50	1.25	.375	.375	.375	.375
26	Waukesha.....(11) 6BZ	T, B, Ind	6-4x4¼	86-2800	65-2000	320.0	5.75	210-1000 (BE)	N	In	L	Sil	1.68	1.43	1.50	1.25	.375	.375	.375	.375
27	Waukesha.....(11) 6MKR	T, B, Ind	6-4⅛x4¾	98-2500	58-1600	381.0	5.34	270-800 (BE)	N	In	L	Sil	1.93	1.43	1.75	1.25	.375	.375	.375	.375
28	Waukesha.....(11) 6MZR	T, B, Ind	6-4¼x4¾	106-2500	66-1600	404.0	5.38	286-800 (BE)	N	In	L	Sil	1.93	1.43	1.75	1.25	.375	.375	.375	.375
29	Waukesha.....(11) 140-GS	T, B, Ind	6-4¼x5½	122-2250	114-2250	468.0	5.80	362-1000 (BE)	W	In	I	Sil	2.12	1.56	1.87	1.37	.531	.469	.434	.434
30	Waukesha.....(11) 6SRLR	T, B, Ind	6-4⅜x5⅛	112-2250	105-2250	462.0	5.50	330-600 (BE)	N	Se	L	Sil	2.16	1.65	1.87	1.37	.386	.375	.375	.375
31	Waukesha.....(11) 140-CK	T, B, Ind	6-4½x5½	136-2250	128-2250	525.0	5.80	407-1000 (BE)	W	In	I	Sil	2.12	1.56	1.87	1.37	.531	.469	.434	.434
32	Waukesha.....(11) 6SRKR	T, B, Ind	6-4⅝x5⅛	125-2250	120-2250	517.0	5.50	369-600 (BE)	N	Se	L	Sil	2.16	1.65	1.87	1.37	.386	.375	.375	.375
33	Waukesha.....(11) 145-GS	T, B, Ind	6-4¾x6	152-2000	143-2000	638.0	5.60	481-1000 (BE)	W	In	I	Sil	2.37	1.84	2.12	1.62	.594	.531	.500	.500
34	Waukesha.....(12) 6GAL	T, B, Ind	6-5x5½	136-2000	124-2000	648.0	5.00	462-750 (BE)	D	In	I	Sil	2.21	1.75	2.00	1.50	.500	.500	.437	.437
35	Waukesha.....(11) 6RBR	T, B	6-5x5¾	150-2000	144-2000	677.0	5.35	492-800 (BE)	N	Se	L	Sil	2.40	2.40	2.12	2.12	.400	.400	.437	.437
36	Waukesha.....(11) 145-GK	T, B, Ind	6-5¼x6	186-2000	177-2000	779.0	5.60	586-1000 (BE)	W	In	I	Sil	2.37	1.84	2.12	1.62	.594	.531	.500	.500
37	Waukesha.....(12) 6GAK	T, B, Ind	6-5½x5½	155-2000	143-2000	784.0	4.80	545-900 (BE)	D	In	I	Sil	2.21	1.75	2.00	1.50	.500	.500	.437	.437
38	Waukesha.....(12) 6WAL	T, B, Ind	6-5¾x6½	200-1800	162-1300	1013.0	5.00	735-800 (BE)	W	In	I	Sil	2.65	2.22	2.37	2.00	.656	.656	.500	.500
39	Waukesha.....(12) 6WAK	T, B, Ind	6-6¼x6½	235-1800	193-1300	1197.0	5.20	865-900 (BE)	W	In	I	Sil	2.65	2.22	2.37	2.00	.656	.656	.500	.500
40	Waukesha.....(12) 6EL	Ind	6-6½x7	165-1125	144-1050	1395.0	4.00	1000-550 (BE)	W	In	I	Sil	2.84	2.53	2.50	2.25	.718	.718	.562	.562
41	Waukesha.....(12) 6EK	Ind	6-7x7	190-1125	168-1050	1616.0	4.00	1120-550 (BE)	W	In	I	Sil	2.84	2.53	2.50	2.25	.718	.718	.562	.562
42	Waukesha.....(12) 6NK	Ind	6-7x8½	221-1050	196- 950	1962.0	5.50	1330-600 (BE)	W	In	I	Sil	2.84	2.53	2.50	2.25	.718	.718	.562	.562
43	Waukesha.....(12) 6LRO	Ind	6-8½x8½	337-1050	300- 900	2894.0	3.80	1870-700 (BE)	N	Se	I	Sil	3.50	3.00	3.25	2.75	.750	.840	.562	.552
44	White.....(H) 35A	T	4-3⅝x3½	40-2600	33-2600	145.0	5.70	88-1200 (EA)	N	Se	OH	AUS	1.57	1.22	1.40	1.06	.344	.344	.372	.372
45	White.....100A	T, B	6-3⅛x4½	90-2800	.....	250.0	6.75	185-1200 (BE)	N	In	L	AUS	1.65	1.62	1.43	1.50	.381	.381	.375	.375
46	White.....110A	T, B	6-3⅛x4½	100-2600	.....	270.0	6.50	200-1300 (BE)	N	In	L	AUS	1.65	1.62	1.43	1.50	.381	.381	.375	.375
47	White.....120A	T, B	6-3⅞x4½	110-2600	.....	318.0	6.40	285-1200 (BE)	N	In	L	AUS	1.65	1.62	1.43	1.50	.381	.381	.375	.437
48	White.....140A	T, B	6-3⅞x5½	125-2600	.....	362.0	6.28	285-1100 (BE)	N	In	L	AUS	1.65	1.62	1.75	1.50	.381	.381	.375	.437
49	White.....(H) 140TA	B	6-3⅞x5⅛	.....	125-2800	362.0	6.28	250-1200 (BE)	N	In	L	AUS°x	.....	.....	1.75	1.50	.375	.391	.....	.....
50	White.....(H) 24A	B	12-4⅛x4¼	.....	209-2600	681.0	6.10	500-1200 (BE)	D	In	L	AUS°	.....	.....	1.62	1.62	.375	.375	.....	.....
51	Willys.....442	C, T	4-3⅛x4⅜	63-3900	.....	134.2	6.48	108-1800 (BE)	N	In	L	CNS	1.53	1.46	1.34	1.28	.359	.359	.373	.373
52	Wisconsin.....AA	M, Tr, Ind	1-2¼x2¾	1.8-2600	1.8-2600	10.9	4.40	4.2-2000 (EA)	N	In	L	AUS	1.12	1.12	.875	.875	.187	.187	.310	.310
53	Wisconsin.....AB	M, Tr, Ind	1-2½x2¾	3-2600	3-2600	13.5	4.40	6.8-1800 (EA)	N	In	L	AUS	1.12	1.12	.875	.875	.187	.187	.310	.310
54	Wisconsin.....ADH	M, Tr, Ind	1-2¾x3¼	5.1-2600	5.1-2600	19.3	5.10	10.8-2000 (EA)	N	Se	L	Sil	1.31	1.31	.687	.875	.275	.275	.310	.310
55	Wisconsin.....AK	M, Tr, Ind	1-2⅞x2¾	4.2-2400	4.2-2400	17.8	4.59	9.5-1700 (EA)	N	In	L	AUS	1.12	1.12	.937	.937	.187	.187	.310	.310
56	Wisconsin.....AEH	M, Tr, Ind	1-3x3¼	6.1-2600	6.1-2600	22.9	5.10	12.1-2000 (EA)	N	Se	L	Sil	1.31	1.31	.687	.875	.275	.275	.310	.310
57	Wisconsin.....AFH	M, Tr, Ind	1-3¼x4	7.2-2200	7.2-2200	33.1	4.65	20-1400 (EA)	N	Se	L	Sil	1.56	1.56	.812	1.25	.275	.275	.310	.310
58	Wisconsin.....AGH	M, Tr, Ind	1-3½x4	8.4-2200	8.4-2200	38.5	4.65	24-1300 (EA)	N	Se	L	Sil	1.56	1.56	.812	1.25	.275	.275	.310	.310
59	Wisconsin.....AHH	M, Tr, Ind	1-3⅝x4	9.2-2200	9.2-2200	41.3	4.50	26-1300 (EA)	N	Se	L	Sil	1.56	1.56	.812	1.25	.275	.275	.310	.310
60	Wisconsin.....AC-4	Tr, Ind	4-2⅝x3¼	16-2600	16-2600	70.4	4.60	39.5-1600 (EA)	N	Se	I	Sil	1.12	1.12	.937	.937	.232	.232	.310	.310
61	Wisconsin.....VE-4	M, Tr, Ind	4-3x3¼	22-2600	22-2600	91.9	4.60	50-1700 (EA)	N	Se	L	CNS	1.31	1.31	1.12	1.12	.275	.275	.310	.310
62	Wisconsin.....AM-4	Tr, Ind	4-3¼x4	25-2200	25-2200	132.0	4.56	79-1300 (EA)	N	Se	I	Sil	1.50	1.37	1.12	1.12	.276	.256	.310	.310
63	Wisconsin.....AP-4	Tr, Ind	4-3½x4	32-2100	32-2100	154.0	4.60	94-1100 (EA)	N	Se		Sil	1.50	1.37	1.12	1.12	.276	.256	.310	.310

ABBREVIATIONS

§—Used in Bus engines; no liners used in truck engines

°—Stellite faced

*—Weight complete with ignition and carburetor

**—Pressure also to Camshaft thrust bearing

■—Also available in reduction gear models

▼—Also availabie in R.H. rotation

‡—Tocco hardened

♣—Weight per pair

†—Rated with generator and water pump, but no fan or muffler

††—1500 lbs. for model 179; model 178 includes reduction gear and weighs 1905 lbs. complete

‡—Super-Charged engine

‡‡—8¾ in. for link rod; 12 in. for master rod

(1)—6.20 ratio for Cars, 5.90 for heavy duty truck engine

(2)—Two used

(3)—Three used

(4)—Four used

(5)—156 ft. lb. torque at 2200 for cars; 156 ft. lb. at 2000 for heavy duty truck engine

(6)—41⅜ in. for 178 model; 36⅞ in. for 179 model

(7)—76$\frac{7}{8}$ in. for 178 model; 62⅝ in. for 179 model

(8)—Minneapolis Moline Power Implement Co.

(9)—Ball Bearings

(10)—Red Wing Motor Co.

(11)—Automotive Power Ratings

(12)—Industrial Power Ratings

a—Main Bearings

(aa)—Forked rod, 88 oz.; Plain Rod, 50 oz.

Al—Aluminum Alloy

Ala—Aluminum Alloy, Anodized

Als—Aluminum Alloy with Steel Strut

AS—Alloy Steel

AUS—Austenitic Steel

B—Buses

b—Connecting Rods

(BE)—Bare Engine

BG—Bevel Gear

Bo—Used in both Intake and Exhaust seats

c—Camshaft Bearings

C—Cars

CA—Cast Alloy

Car—Carter Carburetor

CAS—Cast Alloy Steel

Ch—Chain

CHS—Chrome Nickel Silicon Steel

CI—Cast Iron

CIA—Cast Iron, Anodized

CM—Chrome Molybdenum

CNI—Chrome Nickel Iron

CNM—Chrome Nickel Molybdenum

CNS—Chrome Nickel Steel

CNT—Chrome Nickel Steel with Tungsten

CS—Carbon Steel

CT—Cast Iron, Tin plated

d—Wrist Pins

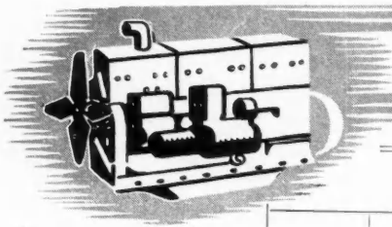
D—Dry Liners

Engines—*Concluded*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT									CARBURETOR			OVERALL DIMENSIONS (In.)			
Seats														MAIN BEARINGS												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Spark Plug—Thread Size	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Line Number
45	N	.....	HG	Al	15	.750x2.56	4	Al	7¼	18	CS	Y	1.75x1.37	3	1.75x2.50	1.75x2.50	abce	18 mm	Zen	1	400	19 1/16	22 5/16	34 11/16	1
45	N	.....	HG	Al	20	.875x2.75	4	Al	8½	30	CS	N	2.00x1.75	3	2.00x2.50	2.00x2.50	abc	18 mm	Zen	1	520	18½	25¼	39 5/16	2
45	N	.....	HG	Al	15	.750x2.56	4	Al	7¼	18	CS	Y	1.75x1.37	4	1.75x2.50	1.75x2.50	abce	18 mm	Zen	1¼	515	24	20¾	43 7/16	3
45	N	.....	HG	Al	28	.875x3.00	4	Al	8½	28	CS	N	2.00x1.87	7	2.00x2.56	2.00x2.56	abce	18 mm	Str	1¼	775	20 1/16	26¾	49 11/16	4
45	N	.....	HG	Al	28	.875x3.00	4	Al	8½	28	CS	N	2.00x1.87	7	2.00x2.56	2.00x2.56	abce	18 mm	Str(2)	1¼	810	22 1/16	26¾	43 11/16	5
45	N	.....	HG	Al	28	.875x3.00	4	Al	8½	28	CS	N	2.00x1.87	9	2.00x2.56	2.00x2.56	abce	18 mm	Str	1¾	1050	21 1/16	26 5/16	62 5/16	6
45	N	.....	HG	Al	28	.875x3.00	4	Al	8½	28	CS	N	2.00x1.87	9	2.00x2.56	2.00x2.56	abce	18 mm	Str(2)	1½	1100	22¾	26 1/16	62 5/16	7
(h)	E	CNS	.....	Ala	76	1.25x4.18	5	AS	12	(aa)	AS	N	2.37x2.50	7	2.62x4.62	2.62x2.00	abc	18 mm	Zen	2	1920	32¼	40¾	90¼	8
prop	eller	shaft	—800	H.P.	—We	ight 5400	lbs.																			9
45	Bo	CNS	.....	Al	.....	1.62x5.90	5	4340	12	228	4140	Y	3.50x2.87	7	4.00x3.00	4.00x3.00	abcer	18 mm	Str	2	3490	49	50	101	10
45	N	.....	HG	Cl	.....	.625x2.62	4	1045	4 5/8	12	1045	Y	1.50x1.00	2	1.50x1.00	2.25x2.31	abcde	14 mm	Op	5/8	125	20¾	14½	15 5/16	11
45	N	.....	HG	Al	.....	.625x2.12	4	1045	6	14	1045	N	1.56x1.25	2(9)	ND1207	ND1207	abcde	14 mm	Op	5/8	143	14 11/16	20½	21 11/16	12
45	E	CA	HG	Cl	26	.875x2.25	4	1045	7¼	29	1045	N	1.75x1.06	3	2.12x1.18	2.12x1.43	abcde	18 mm	Op	1	280	19	26¾	27¾	13
45	E	CA	HG	Cl	30	.875x2.75	4	1045	7¼	29	1045	N	1.75x1.06	3	2.12x1.18	2.12x1.43	abcde	18 mm	Op	1	290	19	26¾	27¾	14
45	N	.....	HG	Cl	43	.875x2.68	5	1045	6	28	1045	N	2.00x1.37	3	2.25x1.62	2.25x1.62	a	18 mm	Op	1	335	17¼	25 5/16	28½	15
45	E	CA	HG	Cl	45	1.12x3.03	4	1045	8¾	46	1045	N	2.00x1.50	3	2.00x1.87	2.00x2.50	abcde	7/8-18	Op	1	385	17 1/8	27	32 7/8	16
(h)	E	CA	HG	Cl	58	1.12x3.06	4	1045	8¾	57	1045	N	2.25x1.75	3	2.62x1.75	2.62x2.25	abcdeg	18 mm	Op	1¼	670	21½	38¾	33 1/16	17
(h)	E	CA	HG	Cl	69	1.12x3.31	4	1045	8¾	57	1045	N	2.25x1.75	3	2.62x1.75	2.62x2.25	abcdeg	18 mm	Op	1¼	680	21½	38¾	33 1/16	18
45	E	CA	HG	Cl	76	1.31x3.87	4	1045	10½	86	1045	N	2.37x2.12	3	2.37x2.12	2.37x2.75	abcdeg	7/8-18	Op	1¼	875	21¼	35	37 1/16	19
45	E	CA	HG	Cl	85	1.31x4.06	4	1045	10½	86	1045	N	2.37x2.12	3	2.37x2.12	2.37x2.75	abcdeg	7/8-18	Op	1¼	925	21¼	35	37 1/16	20
45	E	CA	HG	Cl	96	1.31x4.06	4	1045	10½	85	1045	N	2.37x2.12	3	2.37x2.31	2.37x2.75	abcdeg	18 mm	Op	1¼	1025	20¼	37 11/16	39 1/16	21
45	E	CA	HG	Cl	132	1.50x4.48	4	1045	11¾	141	1045	N	2.75x2.50	3	3.00x2.87	3.00x3.56	abcdeg	7/8-18	Op	1½	1600	24	42	46 1/16	22
45	E	CA	HG	Al	32	1.00x3.12	4	1045	8	40	1045	N	2.00x1.50	7	2.62x1.25	2.62x2.00	abcde	18 mm	Op	1¼	675	19¼	31	39½	23
45	E	CA	HG	Al	34	1.00x3.25	4	1045	8	40	1045	N	2.00x1.50	7	2.62x1.25	2.62x2.00	abcde	18 mm	Op	1¼	685	19¼	31	39½	24
45	E	CA	HG	Al	37	1.00x3.50	4	1045	8	40	1045	N	2.00x1.50	7	2.62x1.25	2.62x2.00	abcde	18 mm	Op	1½	690	19¼	31	39½	25
45	E	CA	HG	Al	46	1.00x3.85	4	1045	8	40	1045	N	2.00x1.50	7	2.62x1.25	2.62x2.00	abcde	18 mm	Op	1½	706	19¼	31	39½	26
45	E	CA	HG	Al	45	1.00x3.85	4	1045	8¾	45	1045	N	2.25x1.50	7	2.62x1.62	2.62x2.75	abcde	18 mm	Op	1½	890	20 1/16	34¾	43 11/16	27
45	E	CA	HG	Al	45	1.00x4.00	4	1045	8¾	48	1045	N	2.25x1.50	7	2.62x1.62	2.62x2.75	abcde	18 mm	Op	1¾	920	20 1/16	34¾	43 11/16	28
(h)	E	CA	HG	Al	60	1.37x3.62	4	1045	10¼	85	1045	N	2.62x2.00	7	3.25x1.75	3.25x3.00	abcdeg	18 mm	Op	1¾	1350	23 5/16	41 11/16	50 5/16	29
30	E	CA	HG	Al	89	1.37x4.00	4	1045	10¼	83	1045	N	2.75x1.75	7	3.00x1.87	3.00x3.00	abcde	7/8-18	Op	1¾	1185	24 1/16	39 1/16	46 1/16	30
(h)	E	CA	HG	Al	64	1.37x3.87	4	1045	10¼	85	1045	N	2.62x2.00	7	3.25x1.75	3.25x3.00	abcdeg	18 mm	Op	1¾	1390	23 5/16	41 11/16	50 5/16	31
30	E	CA	HG	Al	70	1.37x4.25	4	1045	10¼	83	1045	N	2.75x1.75	7	3.00x1.87	3.00x3.00	abcde	7/8-18	Op	1¾	1225	24 1/16	39 5/16	46 1/16	32
(h)	E	CA	HG	Al	.....	1.62x4.37	4	1045	11¾	133	1045	N	3.00x2.25	7	3.50x2.00	3.50x3.50	abcdeg	18 mm	Op	2	1900	25 5/16	46 5/16	55 11/16	33
45	E	CA	HG	Cl	.....	1.87x4.25	4	1045	11¾	130	1045	N	3.00x2.00	7	4.00x2.62	4.00x3.50	abcdeg	18 mm	Op	2	2225	26 5/16	49 1/16	59 1/16	34
45	E	CA	HG	Al	89	1.37x4.60	4	1045	13¼	145	1045	N	2.75x2.50	7	3.50x2.50	3.50x3.50	abcde	7/8-18	Op	2	1575	25 1/16	45 1/16	56 5/16	35
(h)	E	CA	HG	Al	103	1.62x4.87	4	1045	11¾	133	1045	N	3.00x2.25	7	3.50x2.00	3.50x3.50	abcdeg	18 mm	Op	2	1930	25 5/16	46 5/16	55 11/16	36
45	E	CA	HG	Cl	.....	1.87x4.75	4	1045	11¾	130	1045	N	3.00x2.00	7	4.00x2.62	4.00x3.50	abcdeg	18 mm	Op	2	2250	26 5/16	49 1/16	58 1/16	37
(h)	E	CA	HG	Cl	262	1.87x5.00	4	1045	13¼	195	1045	N	3.37x2.37	7	4.00x2.56	4.00x3.56	abcdeg	18 mm	Op	2½	3000	30 5/16	50 1/16	65 5/16	38
(h)	E	CA	HG	Cl	.....	1.87x5.50	4	1045	13¼	195	1045	N	3.37x2.37	7	4.00x2.56	4.00x3.56	abcdeg	18 mm	Op	2½	3050	30 5/16	50 1/16	65 5/16	39
(h)	E	CA	HG	Cl	.....	2.00x6.00	4	1045	15 5/16	314	1045	N	3.25x2.75	7	3.75x3.75	3.75x5.50	abcdeg	18 mm	Op	2½	5675	31 1/16	60 5/16	76	40
(h)	E	CA	HG	Cl	304	2.00x6.00	4	1045	15 5/16	314	1045	N	3.25x2.75	7	3.75x3.75	3.75x5.50	abcdeg	18 mm	Op	2½	5700	31 1/16	60 5/16	76	41
(h)	E	CA	HG	Cl	304	2.00x6.00	4	1045	15 5/16	314	1045	N	3.25x2.75	7	3.75x3.75	3.75x5.50	abcdeg	18 mm	Op	2½	5900	31 1/16	61 1/16	76	42
30	E	CA	HG	Cl	776	2.25x7.75	5	1045	18 3/16	474	1045	N	4.00x3.75	7	4.25x4.81	4.25x5.50	abcdeg	7/8-18	Op(2)	2½	10640	48½	65	95 1/16	43
30	E	AS	HG	Cl	37	.859x3.15	4	3140	6	24	1050	Y	2.25x1.43	3	2.25x1.50	2.25x1.83	abc	14 mm	Zen	1¼	475	38	25	32	44
45	E	AS	HG	Al	38	1.00x3.03	5	1040	9 11/16	40	1050	Y	2.18x1.34	7	3.00x1.84	3.00x1.93	abcde	14 mm	Str	1¼	973	29 5/16	40 5/16	44 1/16	45
45	E	AS	HG	Al	43	1.00x3.03	5	1040	9 11/16	52	1050	Y	2.18x1.34	7	3.00x1.84	3.00x1.93	abcde	14 mm	Str	1¼	973	29 5/16	40 5/16	44 1/16	46
45	E	AS	HG	Al	45	1.00x3.46	5	1040	9 11/16	52	1050	Y	2.18x1.34	7	3.00x1.84	3.00x1.93	abcde	14 mm	Str	1¼	993	29 5/16	40 5/16	44 1/16	47
45	E	AS	HG	Al	45	1.00x3.46	5	1040	9 11/16	52	1040	Y	2.18x1.34	7	3.00x1.84	3.00x1.93	abcde	14 mm	Str	1¼	1051	29 5/16	40 5/16	44 1/16	48
45	E	St	HG	Al	45	1.00x3.46	5	.....	9 11/16	52	.....	Y	2.18x1.34	7	3.00x1.84	3.00x1.93	abcdef	14 mm	Str	1¼	1260*	.....	.....	.....	49
.....	E	CNM	HG	Al	30	1.18x-.—	5	.....	8 31/32	.....	.....	Y	2.43x2.31	7	2.87x2.09	2.87x2.40	abcdef	14 mm	Zen	.....	2275*	.....	.....	.....	50
45	N	.....	Ch	Cl	24	.812x2.78	3	MS	9 1/16	34	1040	Y	1.94x1.30	3	2.33x1.92	2.33x1.75	abce	14 mm	Car	1¼	364	19	26 3/16	26¼	51
45	E	Mo	HG	Al	6	.625x1.81	3	Al	6	6	1045	Y	1.00x1.00	2	(9)	(9)	.....	18 mm	Str	5/8	68	17¼	16¾	14½	52
45	E	Mo	HG	Al	8	.625x2.06	3	Al	6	6	1045	Y	1.00x1.00	2	(9)	(9)	.....	18 mm	Str	5/8	68	17¼	16¾	14½	53
45	Bo	Mo	HG	Al	12	.750x2.29	3	1035	8	20	1045	Y	1.12x1.25	2	(9)	(9)	.....	18 mm	Str	¾	125	16¾	20 1/16	17½	54
45	E	Mo	HG	Al	10	.625x2.37	4	Al	6	6	1045	Y	1.00x1.00	2	(9)	(9)	.....	18 mm	Str	5/8	70	17¾	16¾	15	55
45	Bo	Mo	HG	Al	14	.750x2.56	4	1035	8	20	1045	Y	1.12x1.25	2	(9)	(9)	.....	18 mm	Str	¾	130	16¾	20 1/16	17½	56
45	Bo	Mo	HG	Al	24	.937x2.75	4	1035	9½	33	1045	Y	1.37x1.37	2	(9)	(9)	.....	18 mm	Str	¾	170	18 7/8	24 5/8	19 1/16	57
45	Bo	Mo	HG	Al	24	.937x2.75	4	1035	9½	33	1045	Y	1.37x1.37	2	(9)	(9)	.....	18 mm	Str	¾	175	18 7/8	24 5/8	19 1/8	58
45	Bo	Mo	HG	Al	26	.937x3.00	4	1035	9½	33	1045	Y	1.37x1.37	2	(9)	(9)	.....	18 mm	Str	1	180	18 7/8	24 5/8	18 1/8	59
45	Bo	Mo	HG	Al	11	.875x2.17	4	1035	8 5/16	21	1045	Y	1.75x1.12	2	(9)	(9)	g	18 mm	Str	¾	230	17	26¼	29	60
45	Bo	Mo	HG	Al	16	.750x2.56	4	1035	8 5/16	21	1045	N	1.37x1.12	2	(9)	(9)	.....	18 mm	Str	7/8	285*	21½	25½	25 1/16	61
45	Bo	Mo	HG	Al	24	.937x2.75	4	1035	8 5/16	29	1045	N	1.75x1.25	3	(9)	(9)	ag	18 mm	Str	1	340	20	29	36 5/16	62
45	Bo	Mo	HG	Al	27	.937x2.75	4	1035	8 5/16	29	1045	N	1.75x1.25	3	(9)	(9)	ag	18 mm	Str	1	345	20	29	36 5/16	63

ABBREVIATIONS—Cont.

DC—Durachrome Casting
DFS—Drop Forged Steel
Dia—Diachrome
Dur—Duralumin
e—Timing Gears or Chain
E—Used on Exhaust valve seats
(EA)—Engine with Standard Accessories
f—Accessories drive
F—In Head and Side ("F" Head)
FA—Fire Apparatus
g—Rocker Arms and Shafts
(h)—Intake 30°, Exhaust 45°
(H)—Horizontal Motor
HC—Helical Gear and Chain
HG—Helical Gear
HH—Horizontal in Head (Valves)
Hol—Holley Carburetor
HS—High Speed Steel
I—In Head (Valves)
In—Integral
Ind—Industrial
JM—Jadson 1-S material
(k)—Intake 30°, Exhaust 44°
L—Valves at Side (L-Head)
M—Marine
MA—Molybdenum Alloy
ML—Mechanical Lubricator System
Mo—Molybdenum
MS—Manganese Steel
N—No or none
NCI—Nickel Cast Iron
NS—Nickel Steel
Op—Optional
Pro—Proferal
r—Reverse Gear
RC—Rail Cars
SA—Special Alloy
SB—Spiral Bevel Gear
Sch—Schebler Carburetor
Se—Separate
SG—Spur Gear
Sho—Shore Carburetor
Sil—Silcrome Steel
Spec—Special
SS—Semi-Steel
St—Stellite Steel
Str—Stromberg Carburetor
t—Tappets and Valve Mechanism
T-12—Thompson Products No. 12
T—Valves Opposite (T-Head)
T—Trucks
TA—Tungsten Alloy
Til—Tillotson Carburetor
Tr—Tractors
Tun—Tungsten Steel
W—Wet Liners
WA—Wausau Alloy
WR—Wilcox-Rich-EA5
(x)—Sodium Cooled
Y—Yes
Zen—Zenith Carburetor



AUTOMOTIVE DIESEL

Line Number	ENGINE MAKE AND MODEL	Built Under License from	Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	GENERAL: With Bare Engine — Maximum Brake Hp. at Specified R.P.M.	GENERAL: With Standard Accessories — Max. Intermittent Hp. at Specified R.P.M.	GENERAL: With Standard Accessories — Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio - to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.)	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.) — Automotive or Industrial	Shipping Weight (Lb.) — Marine	VALVES — Arrangement	VALVES — Intake Port Diameter and Lift (In.)
1	Atlas Imperial 2AM115	Own	M	DI	2-4¾x6½	W	4	230	.....	.....	18- 950	15.00	675	65	.....	.....	.....	.....	VI	1.62- .390
2	Atlas Imperial...1LN29	Lanova	I	AC	1-3½x3¾	W	4	29	6.5-1800	5.7-1800	5-1800	15.50	750	76	72.8‡	15-1100	364	.....	VI	1.06- .390
3	Atlas Imperial...3LN29	Lanova	I	AC	3-3½x3¾	W	4	87	20-1800	16.5-1800	15-1800	15.50	750	76	40.3‡	45-1100	604	.....	VI	1.06- .390
4	Buda.....4-DT-212	Lanova	C,T,Tr,R	AC	4-3⅝x5½	D	4	212	60.5-2300	49-2300	37-1800	14.50	725	77	25.7‡	123.5-1400	950	.....	VI	1.37- .486
5	Buda.....4-DTM-212	Lanova	M	AC	4-3⅝x5½	D	4	212	60.5-2300	50-2100	40-1800	14.50	725	83	24.6	132-1400	.....	985	VI	1.37- .486
6	Buda.....4-DT-226	Lanova	C,T,Tr,R	AC	4-3¾x5½	D	4	226	58.5-2000	48-2000	39-1800	14.50	725	76	24.3‡	132-1400	950	.....	VI	1.37- .486
7	Buda.....6-DT-278	Lanova	C,T,Tr,B	AC	6-3⅝x4½	D	4	278	82-2600	69-2600	47-1800	14.50	725	74	23.5‡	161.8-1500	1105	.....	VI	1.37- .486
8	Buda.....6-DT-294	Lanova	C,T,Tr,B	AC	6-3⅝x4¾	D	4	294	85-2400	71-2400	51-1800	14.50	725	76	21.9‡	177-1500	1115	.....	VI	1.37- .486
9	Buda.....6-DT-317	Lanova	C,T,Tr,B	AC	6-3⅝x5½	D	4	317	90-2300	75-2300	52.5-1800	14.50	725	73	21.6‡	185.4-1500	1133	.....	VI	1.37- .486
10	Buda.....6-DTM-317	Lanova	M	AC	6-3⅝x5½	D	4	317	90-2300	75-2100	56-1800	14.50	725	78	22.3	195-1500	.....	1250	VI	1.37- .486
11	Buda.....6-DT-389	Lanova	T,Tr,B	AC	6-3⅞x5½	D	4	389	96-2100	74.5-2100	57-1600	14.20	725	73	24.5‡	222.5-1100	1400	.....	VI	1.44- .476
12	Buda.....6-DT-468	Lanova	T,Tr,B	AC	6-4¼x5½	D	4	468	113-2000	89-2000	68-1600	14.20	725	72	21.1‡	268.5-1100	1435	.....	VI	1.59- .476
13	Buda.....6-DTM-468	Lanova	M	AC	6-4¼x5½	D	4	468	113-2000	97-1800	75-1600	14.20	725	79	23.7	308-1100	.....	1775	VI	1.59- .476
14	Buda.....6-DH-691	Lanova	T,Tr,R	AC	6-4¾x6½	D	4	691	150-1800	123-1800	81-1200	13.70	725	77	28.0‡	404-1100	2270	.....	VI	1.72- .516
15	Buda.....6-DHM-691	Lanova	M	AC	6-4¾x6½	D	4	691	150-1800	125-1600	92-1300	13.70	725	81	29.3	432-1100	.....	2700	VI	1.72- .516
16	Buda.....6-DH-909	Lanova	Tr,R,I	AC	6-5¼x7	W	4	909	169-1500	143-1500	107-1200	13.60	725	77	30.4‡	534- 900	3250	.....	VI	1.90- .540
17	Buda.....6-DHM-909	Lanova	M	AC	6-5¼x7	W	4	909	169-1500	152-1500	117-1200	13.60	725	85	28.6	569- 900	.....	3350	VI	1.90- .540
18	Buda.....6-DH-1611	Lanova	R,I	AC	6-6¼x8¾	W	4	1611	217-1100	176-1100	135- 900	13.00	725	75	50.9‡	917- 650	6875	.....	VI	2.25- .687
19	Buda.....6-DH-1742	Lanova	R,I	AC	6-6½x8¾	W	4	1742	234-1100	192-1100	146- 900	13.00	725	74	47.3‡	991- 650	6900	.....	VI	2.37- .687
20	Buda.....6-DH-1879	Lanova	R,I	AC	6-6⅝x8¾	W	4	1879	248-1100	203-1100	155- 900	13.00	725	73	44.8‡	1043- 650	6950	.....	VI	2.50- .687
21	Buda.....6-DHM-1879	Lanova	M	AC	6-6⅝x8¾	W	4	1879	248-1100	222-1100	186-1000	13.00	725	78	34.9	1140- 650	.....	6500	VI	2.50- .687
22	Buda.....6-PHD-1879	Lanova	I	AC	6-6⅝x8¾	W	4	1879	248-1100	203-1100	155- 900	13.00	725	73	58.1‡	1043- 650	9000	.....	VI	2.50- .687
23	Caterpillar.....D-17000	Own	M,I,R	PC	8-5¾x8	W	4	1662	‡190-1000	152-1000	136-1000	.....	.....	65	58.9‡	1042- 700	8000	7750	VI	.....
24	Caterpillar.....D-13000	Own	Tr,M,R,I	PC	6-5¾x8	W	4	1246	‡150-1000	128-1000	115-1000	.....	.....	73	48.8‡	842- 800	5610	5650	VI	.....
25	Caterpillar.....D-11000	Own	M,I	PC	6-5¼x8	W	4	1039	‡125-1000	106-1000	95-1000	.....	.....	72	59.1‡	703- 800	5610	5570	VI	.....
26	Caterpillar.....D-8800	Own	Tr,M,I	PC	4-5¾x8	W	4	831	‡102-1000	88-1000	79-1000	.....	.....	75	55.7‡	561- 800	4400	4550	VI	.....
27	Caterpillar.....D-7700	Own	M,I	PC	4-5¼x8	W	4	693	‡ 86-1000	74-1000	66-1000	.....	.....	75	66.6‡	471- 800	4400	4550	VI	.....
28	Caterpillar.....D-4600	Own	Tr,M,I	PC	6-4¼x5½	W	4	468	‡ 82-1600	69-1600	62-1600	.....	.....	66	48.4‡	300-1100	3000	3130	VI	.....
29	Caterpillar.....D-4400	Own	Tr,M,I	PC	4-4¼x5½	W	4	312	‡ 55-1600	46-1600	41-1600	.....	.....	65	58.5‡	194-1100	2400	2430	VI	.....
30	Caterpillar.....D-3400	Own	Tr,M,I	PC	4-3¾x5	W	4	221	‡ 34-1650	28.2-1650	25.2-1650	.....	.....	54	75.0‡	127-1100	1890	1930	VI	.....
31	Caterpillar.....D-468	Own	T	PC	6-4¼x5½	W	4	468	.....	98-1800	.....	.....	.....	92	23.5‡	340- 800	2300	.....	VI	.....
32	Caterpillar.....D-312	Own	T	PC	4-4¼x5½	W	4	312	.....	60-1800	.....	.....	.....	84	27.8‡	193-1200	1670	.....	VI	.....
33	Cooper-Bessemer(1)EN	.....	M,R,I	DI	8-8x10½	W	4	4222	.....	450- 900	400- 900	.....	800	83	40.0	3300- 600	....	16000	VI	3.12- .757
34	Cooper-Bessemer(1)GN	.....	M,R,I	DI	8-10½x13½	W	4	9353	.....	925- 750	750- 750	.....	750	85	48.0	7400- 450	....	36000	VI	4.00-1.125
35	Cummins.....A	Own	T,B,Tr,M,R,I	DI	4-4x5	W	4	251	.....	56.5-2200■	33-1400■	18.00	750	74	41.1‡	180-1200	1355	1865	VI	1.37- .406
36	Cummins.....A	Own	T,B,Tr,M,R,I	DI	6-4x5	W	4	377	.....	85-2200■	57-1600■	18.00	750	75	32.1‡	275-1200	1830	2030	VI	1.37- .406
37	Cummins.....H	Own	T,B,Tr,M,R,I	DI	4-4⅞x6	W	4	448	.....	83-1800	50-1200	17.00	750	74	38.6‡	340- 800	1930	3315	VI	1.93- .500
38	Cummins.....H	Own	T,B,Tr,M,R,I	DI	6-4⅞x6	W	4	672	.....	125-1800	85-1400	17.00	750	72	29.9‡	500- 800	2540	3670	VI	1.93- .500
39	Cummins.....HS	Own	T,B,Tr,M,R,I	DI	6-4⅞x6	W	4	672	.....	175-1800	130-1400	14.00	925	114	23.0‡	625-1400	3000	4040	VI	1.93- .500
40	Dodge.....T-126	Lanova	T,Tr	AC	6-3¾x5	N	4	331	100-2600	.....	92.5-2600	14.75	900	87	14.4	240-1200	1338	.....	VI	1.55- .375
41	Fairbanks-Morse (4) 36	Own	M,R,I	TC	6-4¼x6	W	4	510	.....	75-1200	60-1200	16.80	800	78	.....	335-1050	.....	.....	VI	.....
42	Fairbanks-Morse (5) 36	Own	M,R,I	TC	6-5½x7½	W	4	1068	.....	150-1200	120-1200	14.70	800	74	.....	660-1050	.....	.....	VI	.....
43	Fairbanks-Morse (5) 46	Own	M,R,I	DI	6-8x10½	W	4	3167	.....	324- 800	225- 720	14.90	800	78	.....	2070- 650	.....	.....	VI	.....
44	General Motors...3-71	Own	T,B,Tr,M	DI	3-4¼x5	....	2	212	.....	83-2000	62-2000	16.00	980	58	18.5‡	263-1000	1150	.....	VI	No Valves
45	General Motors...4-71	Own	T,B,Tr,M	DI	4-4¼x5	....	2	284	.....	110-2000	83-2000	16.00	980	58	15.7‡	350-1000	1300	.....	VI	No Valves
46	General Motors...6-71	Own	T,B,Tr,M	DI	6-4¼x5	....	2	425	.....	165-2000	123-2000	16.00	980	57	13.5‡	525-1000	1660	.....	VI	No Valves
47	Gray Marine.....(7)	G.M.C.	M	DI	6-4¼x5	....	2	425	.....	165-2000	123-1200	16.00	980	95	19.7	525-1000	....	2425	VI	No Valves
48	Hercules.....DIXB	Own	Tr,M,I	TC	2-3¾x4½	D	4	99	24-1800	20.5-1800	20.5-1800	15.50	750	91	29.7	71-1400	610	610	VI	1.62- .375
49	Hercules.....DIXC	Own	Tr,M,I	TC	2-4x4½	D	4	113	27.6-1800	23.5-1800	23.5-1800	15.50	750	91	25.9	81-1400	610	610	VI	1.62- .375
50	Hercules.....DIXD	Own	Tr,M,I	TC	2-4¼x4½	D	4	127	27.6-1600	23.5-1600	23.5-1600	15.50	750	92	25.9	91-1300	610	610	VI	1.62- .375
51	Hercules.....DOOB	Own	T,Tr,M,I	TC	4-3¾x4½	D	4	199	62-2600	53-2600	41-1800	14.50	750	91	18.3‡	143-1500	750	.....	VI	1.62- .375
52	Hercules.....DOOC	Own	T,Tr,M,I	TC	4-4x4½	D	4	226	70-2600	60-2600	47-1800	14.50	750	91	15.9‡	162-1400	750	.....	VI	1.62- .375
53	Hercules.....DOOD	Own	T,Tr,M,I	TC	4-4¼x4½	D	4	255	79-2600	66-2600	53-1800	14.50	750	91	14.2‡	180-1400	750	.....	VI	1.62- .375
54	Hercules.....DJXB	Own	T,B,Tr,M,R,I	TC	6-3½x4½	D	4	260	77-2600	66-2600	51-1800	14.50	750	86	17.2‡	178-1400	875	.....	VI	1.62- .375
55	Hercules.....DJXC	Own	T,B,Tr,M,R,I	TC	6-3¾x4½	D	4	298	83-2600	71-2600	59-1800	14.50	750	87	14.8‡	208-1500	875	.....	VI	1.62- .375
56	Hercules.....DJXD	Own	T,B,Tr,M,R,I	TC	6-4x4½	D	4	339	103-2600	88-2600	68-1800	14.50	750	88	12.9‡	232-1600	875	.....	VI	1.62- .375
57	Hercules.....DWXC	Own	T,B,Tr,M,R,I	TC	6-4x4¾	D	4	358	108-2400	92-2400	77-1800	14.50	750	95	15.8‡	265-1400	1220	.....	VI	1.68- .395
58	Hercules.....DWXD	Own	T,B,Tr,M,R,I	TC	6-4¼x4¾	D	4	404	122-2400	104-2400	85-1800	14.50	750	93	14.4‡	299-1400	1220	.....	VI	1.68- .395
59	Hercules.....DRXB	Own	T,B,Tr,M,R,I	TC	6-4⅜x5¼	D	4	474	120-2000	102-2000	89-1600	14.50	750	94	16.1‡	350-1300	1435	.....	VI	2.00- .395
60	Hercules.....DRXC	Own	T,B,Tr,M,R,I	TC	6-4⅝x5¼	D	4	529	133-2000	113-2000	88-1400	14.50	750	94	16.3‡	380-1400	1435	.....	VI	2.00- .395
61	Hercules.....DHXB	Own	T,B,Tr,M,R,I	TC	6-5x6	D	4	707	176-1800	150-1800	121-1400	14.50	750	97	20.7‡	530-1400	2500	.....	VI	2.37- .500
62	Hercules.....DHXC	Own	T,B,Tr,M,R,I	TC	6-5½x6	D	4	855	146-1200	124-1200	108-1000	14.50	750	100	23.1‡	675- 875	2500	.....	VI	2.37- .500
63	Hercules.....DFXB	Own	T,B,M,R,I	TC	6-5x6	D	4	707	177-1800	150-1800	121-1400	14.50	750	97	19.8‡	530-1400	2400	.....	VI	2.37- .500
64	Hercules.....DFXC	Own	T,B,M,R,I	TC	6-5½x6	D	4	779	191-1800	162-1800	133-1400	14.50	750	97	18.0‡	585-1300	2400	.....	VI	2.37- .500
65	Hercules.....DFXD	Own	T,B,M,R,I	TC	6-5½x6	D	4	855	193-1600	164-1600	147-1400	14.50	750	97	16.3‡	645-1350	2400	.....	VI	2.37- .500
66	Hercules.....DFXE	Own	T,B,Tr,M,R,I	TC	6-5⅝x6	D	4	895	200-1600	171-1600	153-1400	14.50	750	97	15.7‡	685-1200	2400	.....	VI	2.37- .500
67	Hill.....2R	Own	M,I	PC	2-3½x5½	D	4	106	.....	19.2-1450	16.6-1450	16.00	....	85	78.4	73-1100	....	1300	VI	1.37- .372
68	Hill.....4R	Own	M,I	PC	4-3½x5½	D	4	212	.....	48.5-1800	32.8-1450	16.00	....	84	53.4	151-1250	....	1750	VI	1.37- .372
69	Hill.....6R	Own	M,I	PC	6-3½x5½	D	4	317	.....	75.5-1800	49.3-1450	16.00	....	85	46.7	240-1100	....	2300	VI	1.37- .372
70	International.....UD6	Own	Tr,M,I	PC	4-3⅞x5¼	D	4	248	40-1500	.....	31.2-1500	14.20	....	66	40.2‡	156- 800	1253	.....	VI	1.50- .500
71	International.....UD9	Own	Tr,M,I	PC	4-4.4x5½	D	4	334	55-1500	.....	42.4-1500	14.40	....	67	35.3‡	208- 800	1499	.....	VI	1.65- .500
72	International.....UD14	Own	Tr,M,I	PC	4-4⅝x6½	W	4	461	71-1350	.....	54.8-1350	13.67	....	70	32.3‡	300- 800	1771	.....	VI	1.78- .503
73	International.....UD18	Own	Tr,M,I	PC	6-4¾x6½	W	4	691	104-1400	.....	80-1400	13.67	....	65	35.2‡	420- 800	2817	.....	VI	1.78- .503
74	Kermath.....DIX	Hercules	M	TC	2-4x4½	D	4	113	.....	27-1800	20-1800	15.50	750	78	43.5	81-1400	....	870	VI	1.62- .375
75	Kermath.....DOO	Hercules	M	TC	4-4x4½	D	4	226	.....	65-2600	49-2600	14.50	500	66	24.5	162-1400	....	1200	VI	1.62- .375
76	Kermath.....DJX	Hercules	M	TC	6-3¾x4½	D	4	298	.....	84-2600	63-2600	14.50	500	64	21.5	208-1500	....	1355	VI	1.62- .375
77	Kermath.....DRX	Hercules	M	TC	6-4⅜x5¼	D	4	474	.....	113-1800	85-1800	14.50	475	79	24.7	350-1300	....	2100	VI	2.00- .395
78	Kermath.....DHX	Hercules	M	TC	6-5x6	D	4	707	.....	160-1600	120-1600	14.50	475	84	26.5	530-1400	....	3182	VI	2.37- .500

(For abbreviations see pages 104-105)

AND OTHER HEAVY OIL ENGINES

VALVES		PISTONS				PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM										STARTING METHOD		OVER ALL DIMENSIONS			
Exhaust Port Diameter and Lift (In.)	Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked in—	Material (S.A.E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifices	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Lubricant Filter—Make	Minimum Recommended Cetane Number of Fuel	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Line Number
1.50– .468	Al	8.25	11.50	4	2	1.62–2.37	P	1040	13.00	10.8	2	....	AB	AB	C	Mu	2000	Op	Pur	Pur	45	DR	Ele	35	27	45	1
.96– .390	Alu	4.25	1.20	3	2	.937–2.75	F	X1335	7.56	2.50	2	2.25	AB	AB	C	Pi	1600	Op	AB	Op	45	Op	E-H	20 1/16	20 1/2	36 11/16	2
.96– .390	Alu	4.25	1.20	3	2	.937–2.75	F	X1335	7.56	2.50	4	2.25	AB	AB	C	Pi	1600	Op	AB	Op	45	Op	E-H	31 1/2	23 5/8	34 1/16	3
1.18– .486	Alu	4.93	3.00	3	2	1.25–2.92	F	1035	9.50	3.41	5	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	33 7/16	25 1/4	36 1/4 (12)	4
1.18– .486	Alu	4.93	3.00	3	2	1.25–2.92	F	1035	9.50	3.41	5	3.00	AB	AB	C	Pi	2000	....	B-P	DeL	46	DR	Ele	46 1/16 (11)	26 7/8	33 5/8 (12)	5
1.18– .486	Alu	4.93	3.36	3	2	1.25–3.06	F	1035	9.50	3.41	5	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	33 7/16	25 1/4	36 1/4 (12)	6
1.18– .486	Alu	5.06	3.00	3	2	1.25–2.92	F	1035	9.50	3.41	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	42 1/16	27	35 1/16 (12)	7
1.18– .486	Alu	4.93	3.00	3	2	1.25–2.92	F	1035	9.50	3.41	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	42 1/16	27	35 1/16 (12)	8
1.18– .486	Alu	4.93	3.00	3	2	1.25–2.92	F	1035	9.50	3.41	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	42 1/16	27	35 1/16 (12)	9
1.18– .486	Alu	4.93	3.00	3	2	1.25–2.92	F	1035	9.50	3.41	7	3.00	AB	AB	C	Pi	2000	....	B-P	DeL	46	DR	Ele	54 1/16 (11)	27 11/16	34 5/16 (12)	10
1.31– .476	Alu	5.25	3.84	3	2	1.50–3.18	F	6140	11.00	4.87	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	48 1/2	25 1/4	37 1/16 (12)	11
1.37– .476	Alu	5.25	4.48	3	2	1.50–3.56	F	6140	11.00	4.87	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	48 1/2	25 1/4	37 1/16 (12)	12
1.37– .476	Alu	5.25	4.48	3	2	1.50–3.56	F	6140	11.00	4.87	7	3.00	AB	AB	C	Pi	2000	....	B-P	DeL	46	DR	Ele	61 11/16 (11)	29 7/8	36 7/8 (12)	13
1.56– .516	Alu	6.00	5.43	3	2	1.75–3.90	F	6140	12.50	10.25	7	3.50	AB	AB	C	Pi	2000	Uni	P-S	DeL	46	DR	Ele	57 3/4	34 1/16	44 1/16 (12)	14
1.56– .516	Alu	6.00	5.43	3	2	1.75–3.90	F	6140	12.50	10.25	7	3.50	AB	AB	C	Pi	2000	....	P-S	DeL	46	DR	Ele	76 1/16 (11)	32	43 1/16 (12)	15
1.78– .540	Alu	8.00	9.30	3	2	2.00–4.37	F	6140	14.25	13.10	7	3.50	AB	AB	C	Pi	2000	Uni	P-S	DeL	46	D-N	E-G	68 3/4	34 1/2	58 11/16 (12)	16
1.78– .540	Alu	8.00	9.30	3	2	2.00–4.37	F	6140	14.25	13.10	7	3.50	AB	AB	C	Pi	2000	....	P-S	DeL	46	D-N	E-G	88 1/16 (11)	32 11/16	47 3/4 (12)	17
2.02– .687	Alu	9.31	17.50	3	2	2.75–5.03	F	1035	17.75	28.51	7	3.75	AB	AB	C	Pi	1800	Uni	P-S	DeL	46	D-N	E-G	86 1/16	38 1/16	62 1/16 (12)	18
2.12– .687	Alu	9.31	17.50	3	2	2.75–5.28	F	1035	17.75	28.51	7	3.75	AB	AB	C	Pi	1800	Uni	P-S	DeL	46	D-N	E-G	86 1/16	38 1/16	62 1/16 (12)	19
2.16– .687	Alu	9.31	19.19	3	2	2.75–5.53	F	1035	17.75	28.51	7	3.75	AB	AB	C	Pi	1800	Uni	P-S	DeL	46	D-N	E-G	86 1/16	38 1/16	62 1/16 (12)	20
2.16– .687	Alu	9.31	19.19	3	2	2.75–5.53	F	1035	17.75	28.51	7	3.75	AB	AB	C	Pi	1800	....	P-S	DeL	46	D-N	E-G	114 7/8 (11)	37 1/16	62 1/16 (12)	21
2.16– .687	Alu	9.31	19.19	3	2	2.75–5.53	F	1035	17.75	28.51	7	3.75	AB	AB	C	Pi	1800	Uni	P-S	DeL	46	D-N	E-G	95 5/8	48	62 1/16 (12)	22
.....	Alu	9.18	.....	4	2	2.37–4.75	F	.....	16.00	.....	5	4.00	Own	Own	C	Si	1750	Don	Own	Own	35	Own	G	88	49 1/2	60 3/16	23
.....	Alu	9.18	.....	4	2	2.37–4.75	F	.....	15.00	.....	7	3.75	Own	Own	C	Si	1750	Don	Own	Own	35	Own	G	100 1/2	42 5/8	66 11/16	24
.....	Alu	9.18	.....	4	2	2.37–4.25	F	.....	15.00	.....	7	3.75	Own	Own	C	Si	1750	Don	Own	Own	35	Own	G	100 1/2	42 5/8	66 11/16	25
.....	Alu	9.18	.....	4	2	2.37–4.75	F	.....	15.00	.....	5	3.75	Own	Own	C	Si	1750	Don	Own	Own	35	Own	G	70 1/16	46 5/8	66	26
.....	Alu	9.18	.....	4	2	2.37–4.25	F	.....	15.00	.....	5	3.75	Own	Own	C	Si	1750	Don	Own	Own	35	Own	G	70 1/16	46 5/8	66	27
.....	Alu	6.18	.....	3	2	1.75–3.50	F	.....	10.25	.....	7	3.00	Own	Own	C	Si	1500	Don	Own	Own	35	Own	G	67 1/16	29 1/8	55 1/4	28
.....	Alu	6.18	.....	3	2	1.75–3.50	F	.....	10.25	.....	5	3.00	Own	Own	C	Si	1500	Don	Own	Own	35	Own	G	54	29 1/8	50 1/16	29
.....	Alu	5.56	.....	3	2	1.56–3.00	F	.....	10.25	.....	5	2.75	Own	Own	C	Si	1500	Don	Own	Own	35	Own	G	51	25	47 1/16	30
.....	Alu	6.18	.....	3	2	1.75–3.50	F	.....	10.25	.....	7	3.00	Own	Own	C	Si	1500	Don	Own	Own	35	LN	Ele	59 3/4	28 3/8	42 5/8	31
.....	Alu	6.18	.....	3	2	1.75–3.50	F	.....	10.25	.....	5	3.00	Own	Own	C	Si	1500	Don	Own	Own	35	LN	Ele	46 3/4	27 1/4	42 5/8	32
2.65– .757	Alu	14.00	28.75	4	2	3.25–7.00	R	3140	21.00	54.0†	9	6.00	Own	AB	C	Mu	2500	Op	Pur	Cun	....	Own	Air	128 1/2	30 1/2	66	33
3.75–1.125	Alu	17.17	58.00	5	2	4.00–9.37	R	1040	27.00	135.7†	9	7.50	Own	AB	C	Mu	2500	Op	Pur	Cun	....	Own	Air	158 1/2	42 1/4	83	34
1.37– .406	Ss	5.04	5.40	3	2	1.49–3.37	F	ST-4135-A	9.50	6.6	5	3.87	Own	Own	...	Mu	....	Don	Cun	Nug	50	L-D	Ele	35 7/16 (2)	27 1/16	39 1/16 (3)	35
1.37– .406	Ss	5.04	5.40	3	2	1.49–3.37	F	ST-4135-A	9.50	6.6	7	3.87	Own	Own	...	Mu	....	Don	Cun	Nug	50	L-D	Ele	46 3/16 (2)	28 5/8	39 1/16 (3)	36
1.93– .500	Ss	6.25	10.20	3	2	1.99–4.09	F	ST-4135-A	12.00	10.8	5	4.50	Own	Own	...	Mu	....	Don	Cun	Nug	50	L-D	Ele	41 1/16 (2)	29 5/8	47 11/16 (3)	37
1.93– .500	Ss	6.25	10.20	3	2	1.99–4.09	F	ST-4135-A	12.00	10.8	7	4.50	Own	Own	...	Mu	....	Don	Cun	Nug	50	L-D	Ele	57 3/16 (2)	29 5/8	47 11/16 (3)	38
1.93– .500	Ss	6.25	10.20	3	2	1.99–4.09	F	ST-4135-A	12.00	10.8	7	4.50	Own	Own	...	Mu	....	Don	Cun	Nug	50	L-D	Ele	60 13/16 (2)	30 1/16	47 11/16 (3)	39
1.31– .375	....	5.50	3.13	3	2	1.12–3.25	F	.....	10.31	3.26	7	3.00	Exc	.....	...	Pi	2000	AC	Pur	DeL	40	AL	Ele	46	25	45	40
.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	7	3.00	AB	AB	C	Pi	1500	Op	.....	.....	50	.....	(6)	.....	.....	.....	41
.....	Cl	.....	.....	.....	.....	.....	...	.....	.....	.....	8	5.50	AB	AB	C	Pi	1500	Op	.....	.....	50	.....	(6)	.....	.....	.....	42
.....	Cl	.....	.....	.....	.....	.....	...	.....	.....	.....	7	5.50	Own	Own	C	Mu	3000	Op	.....	.....	45	.....	Air	.....	.....	.....	43
1.25– .375	AT	4.00	7.00	4	2	1.50–3.62	F	T-1340	10.12	5.80	4	3.50	Own	Own	C	Mu	1500	AC	AC	AC	40	DR	Ele	31 11/16	24 1/16	35 1/2	44
1.25– .375	AT	4.00	7.00	4	2	1.50–3.62	F	T-1340	10.12	5.80	5	3.50	Own	Own	C	Mu	1500	AC	AC	AC	40	DR	Ele	38 1/16	24 1/16	37 1/16	45
1.25– .375	AT	4.00	7.00	4	2	1.50–3.62	F	T-1340	10.12	5.80	7	3.50	Own	Own	C	Mu	1500	AC	AC	AC	40	DR	Ele	50 1/16	24 1/16	37 1/16	46
1.25– .375	AT	6.00	7.00	4	2	1.50–3.62	F	T-1340	10.12	6.12	7	3.50	GM	GM	C	Mu	....	AC	AC	AC	40	DR	Ele	73 3/16	30 5/16	37 1/2	47
1.12– .375	Alu	4.84	3.56	4	2	1.18–3.20	F	CNM	8.00	5.31	2	3.00	AB	AB	C	Pi	1450	.....	.....	.....	.....	45	DR	E-H	27 11/16 (2)	16 5/16	36 1/4	48
1.12– .375	Alu	4.84	4.00	4	2	1.18–3.45	F	CNM	8.00	5.31	2	3.00	AB	AB	C	Pi	1450	.....	.....	.....	.....	45	DR	E-H	27 11/16 (2)	16 5/16	36 1/4	49
1.12– .375	Alu	4.84	4.47	4	2	1.18–3.70	F	CNM	8.00	5.31	2	3.00	AB	AB	C	Pi	1450	.....	.....	.....	.....	45	DR	E-H	27 11/16 (2)	16 5/16	36 1/4	50
1.12– .375	Alu	4.84	3.56	4	2	1.18–3.20	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	32 1/16 (2)	22 7/16	36	51
1.12– .375	Alu	4.84	4.00	4	2	1.18–3.45	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	32 1/16 (2)	22 7/16	36	52
1.12– .375	Alu	4.84	4.47	4	2	1.18–3.70	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	32 1/16 (2)	22 7/16	36	53
1.12– .375	Alu	4.84	3.12	4	2	1.18–2.95	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	39 (2)	22 1/16	32 1/4	54
1.12– .375	Alu	4.84	3.56	4	2	1.18–3.20	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	39 (2)	22 1/16	32 1/4	55
1.12– .375	Alu	4.84	4.17	4	2	1.18–3.45	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	39 (2)	22 1/16	32 1/4	56
1.25– .395	Alu	4.84	4.00	4	2	1.18–3.45	F	CNM	8.50	.....	7	3.50	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	Ele	46 11/16 (2)	25 5/8	36 1/2	57
1.25– .395	Alu	4.84	4.47	4	2	1.18–3.70	F	CNM	8.50	.....	7	3.50	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	Ele	46 11/16 (2)	25 3/4	36 1/2	58
1.37– .395	Alu	6.84	7.09	4	2	1.62–3.75	F	CNM	9.37	8.59	7	3.50	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	46 1/16 (2)	27	38 5/8	59
1.37– .395	Alu	6.84	7.93	4	2	1.62–3.93	F	CNM	9.37	8.59	7	3.50	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	46 1/16 (2)	27	38 5/8	60
1.62– .500	Alu	7.53	9.94	4	2	2.00–4.18	F	CNM	12.00	13.00	7	3.75	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	55 1/16 (2)	29 1/4	44 1/4	61
1.62– .500	Alu	7.53	11.69	4	2	2.00–4.65	F	CNM	12.00	13.00	7	3.75	AB	AB	C	Pi	1650	.....	.....	.....	.....	45	L-D	E-G	55 1/16 (2)	29 1/4	44 1/4	62
1.62– .500	Alu	7.53	9.94	4	2	2.00–4.18	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	.....	.....	45	L-D	Ele	62 13/16 (2)	30 5/8	46 1/16	63
1.62– .500	Alu	7.53	11.69	4	2	2.00–4.42	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	.....	.....	45	L-D	Ele	62 13/16 (2)	30 5/8	46 1/16	64
1.62– .500	Alu	7.53	12.37	4	2	2.00–4.65	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	.....	.....	45	L-D	Ele	62 13/16 (2)	30 5/8	46 1/16	65
1.62– .500	Alu	7.53	12.34	4	2	2.00–4.65	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	.....	.....	45	L-D	Ele	62 13/16 (2)	30 5/8	46 1/16	66
1.37– .372	Alu	4.87	2.69	3	2	1.50–2.75	F	4140	13.25	7.34	3	2.93	AB	AB	C	Pi	1800	Uni	Fram	Cun	....	AL	E-H	35	25	40	67
1.37– .372	Alu	4.87	2.69	3	2	1.50–2.75	F	4140	13.25	7.34	5	2.93	AB	AB	C	Pi	1800	Uni	Fram	Cun	....	AL	Ele	47 1/2	25	40	68
1.37– .372	Alu	4.87	2.69	3	2	1.50–2.75	F	4140	13.25	7.34	7	2.93	AB	AB	C	Pi	1800	AM	Fram	Cun	....	AL	Ele	58	27	45	69
1.31– .500	Alu	5.70	4.33	3	2	1.31–3.25	F	1040	10.00	8.01	5	3.75	AB	Own	C	Si	700	Don	Pur	Pur	....	Own	Ha	38 1/2	21 3/4	39 1/16	70
1.46– .500	Alu	6.43	6.22	3	2	1.50–3.70	F	1040	11.00	10.83	5	4.12	AB	Own	C	Si	700	Don	Pur	Pur	....	Own	Ha	41 1/2	23 11/16	42 1/2	71
1.53– .503	Alu	6.19	7.27	4	2	1.62–4.10	F	1040	13.25	11.91	5	3.25	AB	Own	C	Si	700	Don	Pur	Pur	....	Own	Ha	47 1/16	27 5/8	45 11/16	72
1.53– .503	Alu	6.19	7.27	4	2	1.62–4.10	F	1040	13.25	11.91	7	3.50	AB	Own	C	Si	700	Don	Pur	Pur	....	Own	Ha	60 1/16	29 1/4	47 1/16	73
1.12– .375	Alu	4.84	4.00	5	1	.....	...	CNM	8.00	5.31	2	....	AB	AB	C	Pi	1650	AC	Pur	DeL	....	DR	Ele	41 3/16	23	30 3/8	74
1.12– .375	Alu	4.84	4.00	5	1	.....	...	CNM	8.00	5.31	.....	....	AB	AB	C	Pi	1650	AC	Pur	Pur	....	DR	Ele	47 3/4	22 1/2	33	75
1.12– .375	Alu	4.84	3.56	5	1	.....	...	CNM	8.00	5.31	.....	....	AB	AB	C	Pi	1650	AC	Pur	Pur	....	DR	Ele	54 1/16	22 1/2	33	76
1.37– .395	Alu	6.84	7.09	5	1	.....	...	CNM	9.37	8.59	.....	....	AB	AB	C	Pi	1650	AM	Pur	Pur	....	DR	Ele	60 1/16	27 5/8	37 11/16	77
1.62– .500	Alu	7.53	9.94	5	1	.....	...	CNM	12.00	13.00	.....	....	AB	AB	C	Pi	1650	AM	Pur	Pur	....	DR	Ele	76 5/8	31	45	78

(For abbreviations see pages 104-105)

Automotive Diesel and

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL: Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittant Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio - to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.)	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	VALVES: Arrangement	VALVES: Intake Port Diameter and Lift (In.)
1	Mack ... END405	Lanova	T,B	LE	6-4x5[illegible]	D	4	405	107-2200	94-2200		14.60	840			308-1200	1710		VI	1.56-.418
2	Mack Mar. ... 457D-W	Lanova	M	LE	6-4[illegible]	D	4	457	110-1800		70-1500(8)	14.60	840	90	32.5	355-1100		2275(9)	VI	1.56-.418
3	Mack Mar. ... 457D-Y	Lanova	M	LE	6-4[illegible]	D	4	457	115-1950			14.60	840					2250 **	VI	1.56-.418
4	Mack Mar. ... (13) 6BKH	Hes	T,B,I	DI	6-4[illegible]	N	4	282	83-2800	54-2500	41.5-1800	6.40	500	65	23.5‡	174-1400	975		VI	1.62-.375
5	Mack ... ED	Lanova	T,B	LE	6-4[illegible]	D	4	519	133-2200	122-2200		14.57	840			381-1300	1823	2400 **	VI	1.64-.500
6	Mack ... END605	Lanova	T,B	LE	6-4[illegible]	D	4	605	144-2000	130-2000		14.63	840			455-1100	1980		VI	1.64-.500
7	Mack Mar. ... 605D-W	Lanova	M	LE	6-4[illegible]	D	4	605	125-1800		100-1500(8)	14.63	840	90	32.0	410-1000		3200(9)	VI	1.64-.500
8	Mack Mar. ... 605D-Y	Lanova	M	LE	6-4[illegible]	D	4	605	140-1800	133-1800		14.63	840			455-1100		2775	VI	1.64-.500
9	Mack Mar. ... *605SD-W	Lanova	M	LE	6-4[illegible]	D	4	605	170-1800		135-1500	12.82	840						VI	1.64-.500
10	Mack Mar. ... *605SD-Y	Lanova	M	LE	6-4[illegible]	D	4	605	200-1800			12.82	840						VI	1.64-.500
11	Murphy ... ME-4	Own	M,I,Gs	DI	4-5[illegible]	W	4	675		105-1200	85-1200	17.00		83	50.6‡	472-900	4300	6400	VI	1.62d-.500
12	Murphy ... ME-6	Own	M,I,Gs	DI	6-5[illegible]	W	4	1013		160-1200	130-1200	17.00		84	42.7‡	732-870	5550	8300	VI	1.62d-.500
13	Murphy ... *ME-650	Own	M,I,Gs	DI	6-5[illegible]	W	4	1013		200-1200	160-1200	17.00		104	37.5‡	960-775	6000	8600	VI	1.62d-.500
14	Red Wing ... 42-54HP	Wau-Hes	M	DI	4-4x5	W	4	251	55-2200	42-2000	31-1500	5.90	500	65		155-1000			VI	1.62-.445
15	Red Wing ... 55-60HP	Wau-Hes	M	DI	4-4[illegible]	W	4	353	62-1600	59-1600	55-1400	5.60	500	88	21.8	230-800		1200	VI	1.75-.450
16	Red Wing ... 65-75HP	Wau-Hes	M	DI	6-3[illegible]	W	4	282	78-2800	75-2800	59-1800	6.40	500	92	16.1	174-1400		950	VI	1.62-.375
17	Red Wing ... 100-125HP	Wau-Hes	M	DI	6-4[illegible]	W	4	525	128-2100	125-2100	106-1500	5.80	500	107	17.0	370-1500		1800	VI	1.87-.531
18	Red Wing ... 160-180HP	Wau-Hes	M	DI	6-6[illegible]	W	4	1395	174-1125	170-1125	165-1050	5.40	500	89	33.9	900-500		5600	VI	2.50-.710
19	Red Wing ... 180-200HP	Wau-Hes	M	DI	6-7x7	W	4	1616	200-1125	196-1125	188-1050	5.30	500	87	30.8	1030-500		5800	VI	2.50-.710
20	Reo ... 6DT-294	Buda-Lan	T	AC	6-3[illegible]	D	4	294	75-2400			14.50	725	76		212-1400			VI	
21	Reo ... 6DT-317	Buda-Lan	T	AC	6-3[illegible]	D	4	317	78-2300			14.50	725	73		195-1400			VI	
22	Reo ... 6DT-468	Buda-Lan	T	AC	6-4[illegible]	D	4	468	113-2000	89-2000	68-1600	14.20	725	72	21.1	268-1100	1435		VI	1.59-.476
23	Scripps 7000A,1A,2A,3A	Hercules	M	TC	4-4[illegible]	D	4	255	79-2600	68-2600	52-1800	14.50	750	90	23.1	185-1400		1200	VI	1.62-.375
24	Scripps 8500A,1A,2A,3A	Hercules	M	TC	6-4x4[illegible]	D	4	339	103-2600	88-2600	68-1800	14.50	750	88	21.1	238-1500		1435	VI	1.62-.375
25	Stover ... SL7	Lanova	M,I	AC	1-3[illegible]	W	4	61.9	10.5-1200	9-1200	7.5-1200	15.50	800	80	104.0	46-1200	835	780	VI	1.50-.375
26	Stover ... SL10	Lanova	M,I	AC	1-4[illegible]	W	4	81.2	13-1200	11.5-1200	10-1200	14.75	800	81	78.0	57-1200	835	780	VI	1.50-.375
27	Stover ... SL15	Lanova	M,I	AC	2-3[illegible]	W	4	123.8	21-1200	18-1200	15-1200	15.50	800	80	80.0	92-1200	1340	1200	VI	1.50-.375
28	Stover ... SL20	Lanova	M,I	AC	2-4[illegible]	W	4	162.4	26-1200	23-1200	20-1200	14.75	800	81	60.0	113-1200	1340	1200	VI	1.50-.375
29	Superior ... A-4	Own	M,I	TC	4-4[illegible]	W	4	366		62.5-1500	42-1200	11.80	675	76	44.6	268-1200		1875	VI	1.87-.432
30	Superior ... A-6	Own	M,I	TC	6-4[illegible]	W	4	549		110-1800	62.5-1200	11.80	675	75	33.4	400-1200		2400	VI	1.87-.432
31	Superior ... D-4	Own	M,I	TC	4-5[illegible]	W	4	665		90-1200	76-1200	11.80	750	75	36.0	328-1200		3500	VI	2.25-.652
32	Superior ... D-6	Own	M,I	TC	6-5[illegible]	W	4	998		170-1500	114-1200	11.80	750	76	27.3	727-1000		4250	VI	2.25-.652
33	Superior ... D-8	Own	M,I	TC	8-5[illegible]	W	4	1330		230-1500	152-1200	11.80	750	75	34.9	985-1000		5300	VI	2.25-.652
34	Superior ... P.T.D.	Own	M,I	DI	6-8[illegible]	W	4	3575		300-900	240-720	12.50	750	74	54.2	1750-900		13000	VI	3.12-.875
35	Superior ... P.T.D.	Own	M,I	DI	8-8[illegible]	W	4	4767		400-900	320-720	12.50	750	74	50.0	2000-900		16000	VI	3.12-.875
36	Waukesha ... (14) 130HS	Hes	T,Tr,I	DI	4-3[illegible]	W	4	221	48-2200	36-2000	28-1500	6.12	500	67	24.8‡	142-1000	695		VI	1.62-.445
37	Waukesha ... (14) 130HL	Hes	T,Tr,I	DI	4-4x5	W	4	251	55-2200	42-2000	31-1500	5.90	500	65	22.7‡	155-1000	705		VI	1.62-.445
38	Waukesha ... (14) VRZH	Hes	T,Tr,I	DI	4-4[illegible]	W	4	353	59-1600	47-1600	39-1400	5.60	500	62	26.9‡	229-700	1050		VI	1.75-.450
39	Waukesha ... (13) 6BKH	Hes	T,B,I	DI	6-3[illegible]	N	4	282	83-2800	54-2500	41.5-1800	6.40	500	65	23.5‡	174-1400	975		VI	1.62-.375
40	Waukesha ... (13) 140HS	Hes	T,B,I	DI	6-4[illegible]	W	4	468	111-2250	95-2250	65-1500	5.80	500	73	23.2‡	342-1000	1510		VI	1.87-.531
41	Waukesha ... (13) 140HK	Hes	T,B,I	DI	6-4[illegible]	W	4	525	124-2250	109-2250	74-1500	5.80	500	74	21.0‡	383-1000	1550		VI	1.87-.531
42	Waukesha ... (13) 145HS	Hes	T,B,I	DI	6-4[illegible]	W	4	638	143-2000	121-2000	86-1400	5.60	500	76	21.3‡	450-900	1835		VI	1.87-.594
43	Waukesha ... (13) 145HK	Hes	T,B,M,I	DI	6-5[illegible]	W	4	779	174-2000	148-2000	106-1400	5.60	500	77	17.6‡	550-900	1865	2900	VI	1.87-.594
44	Waukesha ... (14) 6WALH	Hes	T,B,M,I	DI	6-5[illegible]	W	4	1013	172-1800	135-1600	112-1300	5.25	500	67	28.1‡	686-700	3150	3885	VI	2.37-.656
45	Waukesha ... (14) 6WAKH	Hes	T,B,M,R,I	DI	6-6[illegible]	W	4	1197	202-1800	162-1600	135-1300	5.20	500	69	23.7‡	811-700	3200	3935	VI	2.37-.656
46	Waukesha ... (14) 6ELH	Hes	I	DI	6-6[illegible]	W	4	1395	171-1125	131-1125	117-1050	5.60	500	63	51.1‡	900-500	5975		VI	2.50-.713
47	Waukesha ... (14) 6EKH	Hes	I	DI	6-7x7	W	4	1616	196-1125	154-1125	136-1050	5.50	500	63	44.1‡	1030-500	6000		VI	2.50-.713
48	Waukesha ... (14) 6NKH	Hes	M,I	DI	6-7x8[illegible]	W	4	1962	226-1050	187-1050	160-950	5.42	500	58	38.8‡	1350-650	6200	7280	VI	2.50-.713
49	Waukesha ... (14) 6LRH	Hes	M,R,I	DI	6-8[illegible]	W	4	2894	333-1050	277-1050	225-900	5.43	500	68	47.8‡	1830-550	10750	9350	VI	3.25-.750
50	Witte ... AD		I	PC	1-3[illegible]	W	4	37.3	5.2-1500	4.5-1200	4-1200	19.00	800	71	150.0‡	19-1200	600		VI	1.31-.298
51	Witte ... LD		I	PC	1-4[illegible]	W	4	74.4	14-1500	11-1200	9-1200	17.00	750	80	101.0‡	48-1200	910		VI	1.75-.422
52	Witte ... 2LD		I	PC	2-4[illegible]	W	4	149	22-1200	20-1200	18-1200	17.00	750	80	98.9‡	97-1200	1780		VI	1.75-.422
53	Witte ... 4LD		I	PC	4-4[illegible]	W	4	298	51.5-1400	40-1200	36-1200	17.00	750	80	50.0‡	194-1200	1800		VI	1.75-.422
54	Witte ... MD		I	PC	1-5x8	W	4	157	15.6-800	14-720	12-720	16.00	800	84	116.7‡	103-720	1400		HI	1.87-.415
55	Witte ... KD		I	PC	1-4[illegible]x6	W	4	85	7.9-900	7.5-850	6-850	16.00	900	66	166.7‡	46-850	1000		HI	1.58-.381

ABBREVIATIONS

■—Without fan or muffler
‡—Based on automotive or industrial weight, all others on marine.
‡—With full equipment but without radiator fan
*—Supercharged
**—Direct drive
†—Includes piston pin
(1)—Also built in 6 cylinder models
(2)—Fan to flywheel housing
(3)—To top of water outlet (highest point)
(4)—Also built in 1, 2, 3, 4 and 8 cylinder models
(5)—Also built in 8 cylinder model
(6)—Air, electric
(7)—Also built in 1, 2, 3 and 4 cylinder models
(8)—Rating for marine work boats
(9)—With reduction gear
(10)—Cast iron to 1600 R.P.M., aluminum above 1600 R.P.M.
(11)—Includes radiator
(12)—From bottom of pan to air cleaner mounting flange
(13)—Automotive power ratings
(14)—Industrial power ratings
(16)—Overall engine length
A—Air
AB—American Bosch
AC—Air chamber
AC—AC Spark Plug Co.
Al—Alloy iron
AL—Electric Auto-Lite Co.
Alu—Aluminum
AM—Air-Maze Corp.
AT—Arma Steel, tin plated
B—Buses
B-P—Bosh or Purolator
Bur—Burgess
C—Cars
C—Closed
CI—Cast Iron
CNM—Chrome-nickel molybdenum
Cun—Cuno Engineering Corp.
d—Dual
D—Dry liners used
DeL—DeLuxe Products Corp.

Other Heavy Oil Engines—*Concluded*

VALVES		PISTONS				PISTON PINS		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM									STARTING METHOD		OVER ALL DIMENSIONS			
Exhaust Port Diameter and Lift (In.)	Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked in—	Material (S.A.E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifices	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Lubricant Filter—Make	Minimum Recommended Cetane Number of Fuel	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Line Number
1.50– .418	Alu	5.29	4.57	3	2	1.43–3.60	F	4130	10.50	4.87	7	3.50	AB	Exc	C	Pi	1400	Vor	Pur	DeL	46	LN	Ele	27 7/8	46	50 1/2	1
1.56– .418	Alu	5.29	.....	3	2	1.43–3.81	F	4130	10.50	.....	7	3.50	AB	AB	C	Pi	1400	WGB	Pur	WGB	46	LN	Ele	71 3/8 (16)	27	39 1/2	2
1.56– .418	Alu	5.29	.....	3	2	1.43–3.81	F	4130	10.50	.....	7	3.50	AB	AB	C	Pi	1400	WGB	Pur	WGB	46	LN	Ele	71 3/8 (16)	27	39 1/2	3
1.64– .500	Alu	5.75	4.61	3	2	1.62–3.78	F	4130	11.25	6.30	7	3.50	AB	AB	C	Pi	1700	WGB	Pur	WGB	46	LN	Ele	74 5/8 (16)	29	40 7/8	4
1.64– .500	Alu	5.75	4.61	4	1	1.43–3.78	F	4130	11.25	6.30	7	3.50	AB	AB	C	Pi	1700	Vor	Pur	Own	46	LN	Ele	53 3/4	31 7/8	47 1/4	5
1.64– .500	Alu	5.62	6.30	3	2	1.62–4.17	F	4130	11.25	7.13	7	3.50	AB	AB	C	Pi	1700	Vor	Pur	Own	46	LN	Ele	29 3/4	47 1/2	53 3/4	6
1.64– .500	Alu	5.62	6.30	3	2	1.62–4.17	F	4130	11.25	7.13	7	3.50	AB	AB	C	Pi	1700	WGB	Pur	WGB	46	LN	Ele	80 3/8 (16)	29	41	7
1.64– .500	Alu	5.62	6.30	3	2	1.62–4.17	F	4130	11.25	7.13	7	3.50	AB	AB	C	Pi	1700	WGB	Pur	WGB	46	LN	Ele	80 3/8 (16)	29	41 1/16	8
1.64– .500	Alu	5.62	6.30	3	2	1.62–4.17	F	4130	11.25	7.13	7	3.50	AB	AB	C	Pi	1700	WGB	Pur	WGB	46	LN	Ele	.....	.....	.....	9
1.64– .500	Alu	5.62	6.30	3	2	1.62–4.17	F	4130	11.25	7.13	7	3.50	AB	AB	C	Pi	1700	WGB	Pur	WGB	46	LN	Ele	.....	.....	.....	10
1.62d–.500	GI	7.75	22.00	4	2	2.12–4.73	F	1035	12.50	15.25	5	4.00	Own	Own	C	Mu	1500	Don	OP	Pur	50	DR	Ele	56 1/16	37	51 3/8	11
1.62d–.500	GI	7.75	22.00	4	2	2.12–4.73	F	1035	12.50	15.25	7	4.00	Own	Own	C	Mu	1500	Don	OP	Pur	50	DR	Ele	73 7/16	37	53 3/4	12
1.62d–.500	GI	7.75	22.00	4	2	2.12–4.73	F	1035	12.50	15.25	7	4.00	Own	Own	C	Mu	1500	Don	OP	Pur	50	DR	Ele	56 1/16	37	53 3/4	13
1.25– .453	CI	5.12	4.30	3	1	1.12–3.06	F	1045	8.75	3.56	3	2.62	AB	Hes	O	Mu	1200	.....	Mic	Mic	.....	DR	Ele	48 1/4	24	33 3/8	14
1.50– .450	CI	5.96	6.00	3	1	1.31–	F	1045	10.50	5.30	3	2.37	AB	Vik	O	Mu	1200	.....	Mic	Mic	60	AL	Ele	52 11/16	21 1/4	38 1/16	15
1.25– .375	Alu	4.87	2.56	3	1	1.00–3.50	F	1045	8.00	3.50	7	2.62	AB	Vik	O	Mu	1200	.....	Mic	Mic	60	DR	Ele	53 11/16	23 1/8	31 1/8	16
1.37– .469	Alu	6.50	4.00	3	1	1.37–3.87	F	1045	10.25	5.31	7	3.25	AB	Vik	O	Mu	1200	.....	Mic	Mic	60	DR	Ele	78 5/8	29	41 1/16	17
2.25– .710	CI	9.25	20.50	3	1	2.00–5.50	F	1045	15.37	19.60	7	3.75	AB	Vik	O	Mu	1200	Vor	Mic	DeL	60	DR	Ele	100 11/16	30 1/2	56 11/16	18
2.25– .710	CI	9.25	24.75	3	1	2.00–6.00	F	1045	15.37	19.60	7	3.75	AB	Vik	O	Mu	1200	Vor	Mic	DeL	60	DR	Ele	100 11/16	30 1/2	56 11/16	19
.....	Alu	4.93	.....	4	1	1.25–2.75	...	1035	9.50	3.41	7	3.00	.....	.....	C	Pi	2000	.....	.....	.....	46	.....	.....	42 7/16	25 1/2	36 7/16	20
.....	Alu	4.93	.....	4	1	1.25–2.90	...	1035	9.50	3.41	7	3.00	.....	.....	C	Pi	2000	.....	.....	.....	46	.....	.....	42 7/16	25 1/2	36 7/16	21
1.37– .476	Alu	5.25	4.48	3	2	1.50–3.56	F	6140	11.00	4.87	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DeL	46	DR	Ele	48 1/2	25 3/4	37 5/16 (12)	22
1.12– .375	Alu	4.84	4.00	4	2	1.18–3.45	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	AC	Pur	Pur	45	DR	Ele	46 5/8	24 1/4	22 3/4	23
1.12– .375	Alu	4.84	3.56	4	2	1.18–3.20	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	AC	Pur	Pur	45	DR	Ele	53 1/16	24 1/4	22 3/4	24
1.50– .375	Alu	6.50	4.25	3	2	1.37–3.43	F	3135	11.75	6.00	2	2.62	AB	AB	C	Pi	2000	Vor	AB	DeL	.....	DR	E-H	23 1/2	24	46 1/4	25
1.50– .375	Alu	6.50	5.00	3	2	1.37–4.00	F	3135	11.75	6.00	2	2.62	AB	AB	C	Pi	2000	Vor	AB	DeL	.....	DR	E-H	23 1/2	24	46 1/4	26
1.50– .375	Alu	6.50	4.25	3	2	1.37–3.43	F	3135	11.75	6.00	3	2.62	AB	AB	C	Pi	2000	Vor	AB	DeL	.....	DR	Ele	31	30 5/8	38	27
1.50– .375	Alu	6.50	5.00	3	2	1.37–4.00	F	3135	11.75	6.00	3	2.62	AB	AB	C	Pi	2000	Vor	AB	DeL	.....	DR	Ele	31	30 5/8	38	28
1.50– .483	CI	6.68	9.25	4	2	1.75–3.59	F	1040	11.50	8.75	5	3.50	AB	AB	C	Pi	1600	Bur	Pur	Pur	50	LN	Ele	.....	.....	.....	29
1.50– .483	(10)	6.68	9.25	4	2	1.75–3.59	F	1040	11.50	8.75	7	3.50	AB	AB	C	Pi	1600	Bur	Pur	Pur	50	LN	Ele	.....	.....	.....	30
1.87– .605	Alu	8.00	6.50	3	2	2.12–4.50	F	1040	14.25	18.00	5	4.50	AB	AB	C	Pi	1600	Bur	Pur	Pur	50	LN	Ele	.....	.....	.....	31
1.87– .605	Alu	8.00	6.50	3	2	2.12–4.50	F	1040	14.25	18.00	7	4.50	AB	AB	C	Pi	1600	Bur	Pur	Pur	50	LN	Ele	.....	.....	.....	32
1.87– .605	Alu	8.00	6.50	3	2	2.12–4.50	F	1040	14.25	18.00	9	4.50	AB	AB	C	Pi	1600	Bur	Pur	Pur	50	LN	Ele	.....	.....	.....	33
3.12– .875	CI	13.78	73.50	4	2	3.53–7.00	F	1045	21.00	75.50	7	6.00	AB	AB	C	Mu	3000	Bur	Bur	Pur	45	.....	Air	.....	.....	.....	34
3.12– .875	CI	13.78	73.50	4	2	3.53–7.00	F	1045	21.00	75.50	9	6.00	AB	AB	C	Mu	3000	Bur	Bur	Pur	45	.....	Air	.....	.....	.....	35
1.25– .453	CI	5.12	3.60	3	1	1.12–3.06	F	1045	8.75	3.56	3	2.62	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	E-H	33 1/16	21 1/2	38 1/4	36
1.25– .453	CI	5.12	4.30	3	1	1.12–3.06	F	1045	8.75	3.56	3	2.62	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	E-H	33 1/16	21 1/2	38 1/4	37
1.50– .450	CI	5.96	6.00	3	1	1.31–4.06	F	1045	10.50	5.31	3	2.37	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	E-H	39 1/16	25 3/4	34 1/16	38
1.25– .375	Alu	4.87	2.56	3	1	1.00–3.50	F	1045	8.00	3.50	7	2.62	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	E-H	39 1/16	25 3/4	34 5/8	39
1.37– .469	Alu	6.50	3.75	3	1	1.37–3.62	F	1045	10.25	5.31	7	3.25	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	Ele	50 5/8	21 13/16	41 13/16	40
1.37– .469	Alu	6.50	4.00	3	1	1.37–3.87	F	1045	10.25	5.31	7	3.25	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	Ele	50 5/8	21 13/16	41 13/16	41
1.37– .531	Alu	7.25	.....	3	1	1.62–4.37	F	1045	11.75	8.31	7	3.50	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	Ele	55 11/16	25 3/4	46 7/8	42
1.37– .531	Alu	7.25	6.44	3	1	1.62–4.87	F	1045	11.75	8.31	7	3.50	AB	Hes	O	Mu	750	Op	Mic	Mic	.....	Op	Ele	55 11/16	25 3/4	46 3/8	43
2.00– .656	CI	8.37	16.40	3	1	1.87–5.00	F	1045	13.25	12.20	7	4.00	AB	Hes	O	Mu	780	Op	Mic	Mic	.....	Op	E-G	65 5/8	30 5/8	50 7/8	44
2.00– .656	CI	8.37	11.00	3	1	1.87–5.50	F	1045	13.25	12.20	7	4.00	AB	Hes	O	Mu	780	Op	Mic	Mic	.....	Op	E-G	65 5/8	30 5/8	50 7/8	45
2.25– .710	CI	9.25	20.50	3	1	2.00–5.50	F	1045	15.37	19.60	7	3.75	AB	Hes	O	Mu	780	Op	Mic	Mic	.....	Op	E-G	76	32 5/8	56 1/4	46
2.25– .710	CI	9.25	24.75	3	1	2.00–6.00	F	1045	15.37	19.60	7	3.75	AB	Hes	O	Mu	780	Op	Mic	Mic	.....	Op	E-G	76	32 5/8	57 7/16	47
2.25– .710	CI	9.25	24.75	3	1	2.00–6.00	F	1045	15.37	19.60	7	3.75	AB	Hes	O	Mu	780	Op	Mic	HC	.....	Op	E-G	76	32 5/8	57 7/16	48
2.75– .840	CI	11.65	50.00	4	1	2.25–7.75	F	1045	20.87	34.70	7	4.25	AB	Hes	O	Mu	1000	Op	Mic	Mic	.....	Op	E-G	95 1/8	46 1/2	65 1/16	49
1.18– .298	CI	4.43	3.87	4	1	1.25–2.75	F	1045	8.50	3.18	2	1.87	AB	AB	C	Pi	2300	Bur	Cun	Cun	46	AL	E-H	20 3/16	18	32 3/16	50
1.75– .422	CI	6.12	9.62	4	1	1.75–3.50	F	1045	11.50	6.43	2	2.50	AB	AB	C	Pi	2300	AM	Cun	Cun	46	AL	E-H	27 3/8	21	38 3/16	51
1.75– .422	CI	6.12	9.62	4	1	1.75–3.50	F	1045	11.50	6.43	3	3.00	AB	AB	C	Pi	2300	Vor	Cun	Nug	46	AL	Ele	32	25	45 1/2	52
1.75– .422	CI	6.12	9.62	4	1	1.75–3.50	F	1045	11.50	6.43	6	3.00	AB	AB	C	Pi	2300	Vor	Cun	Nug	46	AL	Ele	51	28	44	53
1.87– .415	CI	8.18	15.00	4	2	1.81–4.21	F	1045	18.00	19.87	2	2.50	AB	AB	C	Pi	2300	AM	Cun	Cun	46	.....	Ha	49 1/2	34 5/8	28 7/8	54
1.56– .381	CI	7.25	10.00	4	1	1.25–3.75	F	1045	15.00	10.00	2	2.06	AB	AB	C	Pi	2300	AM	Cun	Cun	46	.....	Ha	40 3/4	30	24 3/8	55

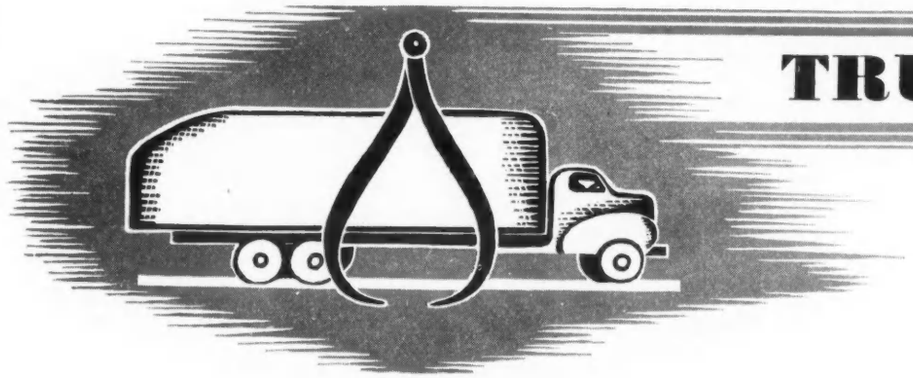
DI—Direct injection
D-N—Deleo-Remy or Novo
Don—Donaldson Co.
DR—Delco-Remy Div.
E-G—Electric or auxiliary gasoline engine
E-H—Electric or hand
Ele—Electric
Exc—Ex-Cell-O Corp. **F**—Floating
G—Auxiliary gasoline engine, electric optional
GI—Grey Iron Casting
G. M. Corp—General Motors Corp.
GS—Generating sets
H—Heat Exchanger, marine only
Ha—Hand
HC—Honan-Crane Corp.
Hes—Hesselman
HI—Horizontally In-head
I—Industrial
L-D—Leece Neville or Delco-Remy
LE—Lanova energy cell
LN—Leece Neville Co.
M—Marine
Mic—Michiana Products Corp.
Mu—Multiple
N—No or none
Nug—Nugent
O—Open
OP—Oilpure Refiner Co.
P—Piston
PC—Precombustion chamber
Pi—Pintle
P-S—Purolator or Stewart-Warner
Pur—Purolator Products, Inc.
R—Railcars **R**—Locked in Rod
Si—Single
Ss—Semi-steel (electric furnace)
T—Trucks **TC**—Turbulence chamber
Tr—Tractors
Uni—United Air Cleaner Div.
VI—Vertically In-head
Vik—Viking **Vor**—Vortex
W—Wet liners used
Wau-Hes—Waukesha-Hesselman
WGB—WGB Oil Clarifier, Inc.

American Two-Cycle Outboard Motors

MAKE AND MODEL	Power Head	Number of Cylinders	Bore and Stroke (In.)	Piston Displacement (Cu. In.)	Engine Type	BRAKE HP. at R.P.M. N. O. A.	BRAKE HP. at R.P.M. Advertised	Engine Weight (Lb.) Fully Equipped	Piston Rings Number and Width	PROPELLER Diameter (In.)	PROPELLER Pitch	PROPELLER Number of Blades	Starting Device	Fuel Tank Capacity (Pts.)	GEAR Ratio	GEAR Tooth Pitch	GEAR Material (S.A.E. No.)	Gearcase Bearing	Grease Seals on Gearcase	Ignition System Type	CARBURETOR Make	CARBURETOR Size (In.)	CARBURETOR Slow Speed Adjustment	CARBURETOR Starting Mixture Obtained	Spark Plug—Make and Model	BEARINGS Main	BEARINGS Connecting Rod	Exhaust—Type	Cooling System	Reverse	Lubrication—Pints Oil to 1 Gal. Gasoline
Champion (1)....1H	RV-2 Port	1	2⅛x1¾	6.23	2-Cy.	3.9-3900	.....	35	2-1/8	7⅝	7	2	Cord	7	13-21	12.57	4150	P	Y	Mag	Til	.....	Y	F	CH-H10	P	P	Un	Ce	N	¾
Champion....2H	RV-2 Port	2	2⅛x1⅜	11.08	2-O	5.8-4000	.....	50	2-1/8	8¼	7½	3	Cord	8	13-21	12.57	4150	AP	Y	Mag	Til	.....	Y	F	CH-7	P	P	Un	Ce	N	¾
Champion....3H	RV-2 Port	2	2⅛x1¾	12.46	AF	7.0-3900	.....	60	2-1/8	8¾	9	2	RR	7	13-21	12.57	4150	AP	Y	Mag	Til	.....	Y	F	CH-H10	P	P	Un	Ce	N	¾
Elto (2)....Cub	Ch.V-2 Port	1	1½x1	1.00	2-Cy.	.50-4000	.50-4000	8½	2-3/32	5½	4¾	2	Cord	1	12-25	16.0	A	P	N	Mag	Own	.....	Y	Pr	CH-H10	.....	.....	Un	Ce	N	1/3
Elto....Pal	Ch.V-2 Port	1	1⅝x1⅜	2.00	2-Cy.	1.1-3750	1.1-3750	14	2-3/32	6	5	2	Cord	1.6	13-20	13.33	A	P	N	Mag	Own	.....	Y	Pr	CH-H10	.....	.....	Un	Ce	N	1/3
Elto....Ace	Ch.V-2 Port	1	1¾x1 3/32	3.75	2-Cy.	1.8-3500	1.8-3500	21	2-3/32	7	5½	2	Cord	3.4	13-20	10.00	A	P	Y	Mag	Own	.....	Y	Pr	CH-C7	.....	.....	Un	Ce	N	1/3
Elto....Handitwin	Ch.V-2 Port	2	1¾x1⅜	6.60	2-O	3.3-3500	3.3-3500	31½	2-3/32	7½	6	2	Cord	3.4	13-20	10.00	A	P	Y	Mag	Own	.....	Y	Pr	CH-C7	.....	.....	Un	Ce	N	1/3
Elto....Lightwin	Ch.V-2 Port	2	2x1⅝	10.00	2-O	5.0-3500	5.0-3500	40	2-1/8	7½	7½	2	Cord	4	13-20	10.38	X-1314	P	Y	Mag	Own	.....	Y	Pr	CH-M6	.....	.....	Un	Ce	N	½
Elto....Weedless Lightwin	Ch.V-2 Port	2	2x1⅝	10.00	2-O	5.0-3500	5.0-3500	48	2-1/8	7½	8	2	Cord	4	13-20	10.38	X-1314	P	Y-	Mag	Own	.....	Y	Pr	CH-M6	.....	.....	Un	Ce	N	½
Elto....Fleetwin	RV-2 Port	2	2¼x1⅞	15.00	2-O	8.5-4000	8.5-4000	66	2-1/8	9	9	2	Cord	9	13-19	8.00	2512	P	Y	Mag	Own	.....	Y	Pr	CH-M6	.....	.....	Un	Ce	N	1
Evinrude (2)....Mate	Ch.V-2 Port	1	1½x1	1.00	2-Cy.	.50-4000	.50-4000	10	2-3/32	5½	4¾	2	Cord	1	12-25	16.00	A	P	N	Mag	Own	.....	Y	Pr	CH-H10	.....	.....	Un	Ce	N	1/3
Evinrude....Ranger	Ch.V-2 Port	1	1⅝x1⅜	2.00	2-Cy.	1.1-3750	1.1-3750	16	2-3/32	6	5	2	Cord*	4	13-20	13.33	A	P	N	Mag	Own	.....	Y	Pr	CH-H10	.....	.....	Un	Ce	N	1/3
Evinrude....Sportsman	Ch.V-2 Port	1	1¾x1 3/32	3.75	2-Cy.	2.0-3500	2.0-3500	26	2-3/32	7	5½	2	Cord*	4	13-20	10.00	A	P	Y	Mag	Own	.....	Y	Pr	CH-H10	.....	.....	Un	Ce	Y	1/3
Evinrude....Sportwin	Ch.V-2 Port	2	1¾x1⅜	6.60	2-O	3.3-3500	3.3-3500	39	2-3/32	7½	6	2	Cord*	6.8	13-20	10.00	A	P	Y	Mag	Own	.....	Y	Pr	CH-H10	.....	.....	Un	Ce	Y	1/3
Evinrude....Midget Racer	RV-2 Port	2	1¾x1 3/32	7.50	2-O	.....	.....	37½	3-3/32	6¾	8½	2	Cord	9	13-20	10.38	X-1314	P	.....	Mag	Own	.....	.....	.....	CH-R1	.....	.....	Muf	Ce	N	2
Evinrude....Speeditwin	RV-2 Port	2	2¾x2½	30.00	2-O	22.5-4000	22.5-4000	110	3-3/32	10½	10½	3	Cord	20	15-21	8.09	2512	P	Y	Mag	Own	.....	Y	Pr	CH-M5	.....	.....	Un	Ce	N	1½
Evinrude....Racing Speeditwin	RV-2 Port	2	2¾x2 7/16	30.00	2-O	.....	.....	97	2-1/8	9½	14	2	Cord	20	13-19	8.00	2512	P	.....	Bat	Vac	.....	.....	.....	CH-R11S	.....	.....	.....	Ce	N	2
Evinrude....Zephyr	RV-2 Port	4	1½x1⅜	9.70	2-O	5.4-4000	5.4-4000	43	2-3/32	7½	7½	2	Cord*	6.8	13-20	10.38	X-1314	P	Y	Mag	Own	.....	Y	Pr	CH-J10	.....	.....	Un	Ce	N	½
Evinrude....Light Four	RV-2 Port	4	1¾x1 3/32	15.00	2-O	9.7-4000	9.7-4000	63	3-3/32	8¾	9	2	Cord*	9	11-17	8.50	2512	P	Y	Mag	Own	.....	Y	Pr	CH-M5	.....	.....	Un	Ce	N	¾
Evinrude....Sport Four	RV-2 Port	4	2x2	25.00	2-O	17.6-4000	17.6-4000	104	3-1/16	9¾	10¼	3	Cord*	20	13-19	8.00	2512	P	Y	Mag	Own	.....	Y	Pr	CH-M5	.....	.....	Un	Ce	N	1
Evinrude....Speedifour	RV-2 Port	4	2⅛x2½	50.00	2-O	33.4-4000	33.4-4000	140	3-3/32	10½	13	3	Cord	32	15-21	8.09	2512	P	Y	Mag	Own	.....	Y	C	CH-M5	.....	.....	Un	Ce	N	1½
Evinrude....Racing-460	RV-2 Port	4	2¾x2½	60.00	2-O	.....	.....	140	2-1/8	10½	18	2	Cord	32	13-19	7.30	2512	P	.....	Bat	Vac	.....	.....	.....	CH-R11S	.....	.....	.....	Ce	N	2
Johnson (3)....MS-20	3 Port	1	1½x1⅜	2.43	2-Cy.	1.5-4000	1.5-4000	24	2-3/32	6⅝	4¼	2	Cord	4.9	13-20	13.3	X-1314	P	Y	Mag	Joh	½	Y	C	CH-J8J	P	P	Un	RFP	Y	½
Johnson....MD-20	3 Port	1	1½x1⅜	2.43	2-Cy.	1.5-4000	1.5-4000	26	2-3/32	6⅝	4¼	2	RR	4.9	13-20	13.3	X-1314	P	Y	Mag	Joh	½	Y	C	CH-J8J	P	P	Un	RFP	Y	½
Johnson....HS-20	CRT	2	1⅝x1⅜	4.08	AF	2.5-4000	2.5-4000	27	2-3/32	6⅝	5¼	2	Cord	4.9	13-20	13.3	X-1314	P	Y	Mag	Joh	½	Y	Pr	CH-J8J	P	P	Un	RFP	Y	½
Johnson....HD-20	CRT	2	1⅝x1⅜	4.08	AF	2.5-4000	2.5-4000	29	2-3/32	6⅝	5¼	2	RR	4.9	13-20	13.3	X-1314	P	Y	Mag	Joh	½	Y	Pr	CH-J8J	P	P	Un	RFP	Y	½
Johnson....TS-15	CRT	2	1⅝x1½	8.84	AF	5.0-4000	5.0-4000	40	3-3/32	8	7½	2	Cord	7	14-25	12.0	X-1314‡	P	Y	Mag	Joh	1/16	Y	Pr	CH-J8J	P	P	Un	RFP	Y	½
Johnson....TD-15	CRT	2	1⅝x1½	8.84	AF	5.0-4000	5.0-4000	42	3-3/32	8	7½	2	RR	7	14-25	12.0	X-1314‡	P	Y	Mag	Joh	1/16	Y	Pr	CH-J8J	P	P	Un	RFP	Y	½
Johnson....KS-15	RV-2 Port	2	2⅛x1 13/16	13.96	AF	9.8-4000	9.8-4000	64	3-1/16	9½	9½	2	Cord	13	14-24	10.0	4615	AP	Y	Mag	Joh	1 1/16	Y	C	CH-R7	P	P	Un	PV	Y	1
Johnson....KD-15	RV-2 Port	2	2⅛x1 13/16	13.96	AF	9.8-4000	9.8-4000	71	3-1/16	9½	9½	2	RR	13	14-24	10.0	4615	AP	Y	Mag	Joh	1 1/16	Y	C	CH-R7	P	P	Un	PV	Y	1
Johnson....SD-10	RV-2 Port	2	2½x2¼	22.09	AF	16.0-4000	16.0-4000	89	3-3/32	10	12	3	RR	20	14-24	10.0	4615	AP	Y	Mag	Joh	⅞	Y	Pr	CH-5M	P	P	Un	PV	N	1
Johnson....PO-15	RV-2 Port	2	2¾x2.52	29.92	2-O	22.0-4000	22.0-4000	109	3-1/8	12	12	3	Cord	20	12-21	7.5	2512	AP	Y	Mag	Vac	2	Y	C	CH-R7	P	A	Un	PV	N	1
Mercury-Comet (4)....KB-1A	SP-2 Port	1	2x1¾	5.50	.....	3.1-4000	3.1-4000	30	3-1/16	7¾	7	2	Cord	5	12-22	.....	.....	P	Y	Mag	Til	.....	Y	F	CH-J8J	P	P	Un	Rot	N	¾
Mercury-Torpedo....KB-3	SP-2 Port	1	2x1¾	5.50	.....	3.2-4000	3.2-4000	33	3-1/16	7¾	7	2	Cord	5	12-22	.....	.....	P	Y	Mag	Til	.....	Y	C	CH-J8J	P	P	Un	Rot	N	¾
Mercury-Rocket....KB-4	SP-2 Port	2	2x1¾	11.00	AF	6.0-4000	6.0-4000	43	3-1/16	7¾	10	3	Cord	.....	14-19	.....	.....	P	Y	Mag	Til	.....	Y	C	CH-J8J	P	P	Un	Rot	N	¾
Neptune (5)-Jr. Single....11A1	2 Port	1	1⅞x1½	2.87	2-Cy.	.....	1.5-3000	17	2-3/32	6	5	2	Cord	2	13-20	14.0	.....	P	Y	Mag	Til	.....	Y	F	CH-J5	P	P	Un	Ce	N	2/3
Neptune-Single....11A2	3 Port	1	2⅛x1½	5.01	2-Cy.	.....	2.5-3400	28	3-3/32	7½	5⅛	2	Cord	4	13-20	14.0	2345	P	Y	Mag	Til	.....	Y	F	CH-6M	P	P	Un	Ro	Y	2/3
Neptune....11A3	2 Port	2	1⅞x1½	5.74	AF	.....	3.5-3500	33	2-3/32	7½	5⅛	2	Cord	4	13-20	14.0	2345	P	Y	Mag	Til	.....	Y	F	CH-J10	P	P	Un	Ro	Y	2/3
Neptune-Jr. Twin....11B4	3 Port	2	2⅛x1½	10.02	2-O	.....	4.0-3000	45	3-3/32	8	7	2	Cord	8	14-21	12.0	X-1315	P	Y	Mag	Til	.....	Y	C	CH-J10	P	P	Un	Ce	N	2/3
Neptune-Six....11A6	3 Port	2	2⅛x1½	10.02	AF	.....	6.0-4000	47	3-3/32	8	7	2	Cord	8	14-21	12.0	X-1315	AP	Y	Mag	Til	.....	Y	F	CH-J10	A	P	Un	Ro	N	2/3
Neptune-Nine....11A10	3 Port	2	2¼x2	15.90	AF	.....	9.5-4000	58	3-3/32	9	9	3	Cord	8	12-21	8.0	2345	AP	Y	Mag	Til	.....	Y	F	CH-J10	A	P	Un	Ro	N	1
Neptune-Master Twin	3 Port	2	2½x2	19.63	2-Cy.	.....	16.0-4000	95	3-3/32	10	10	3	Cord	16	12-21	8.0	2345	AP	Y	Mag	Til	.....	Y	C	CH-J10	A	A	Un	Ce	N	1
Waterwitch (6)....571-36	2 Port	1	1½x1⅝	2.43	2-Cy.	1.0-4000	1.0-4000	21	2-	6½	4	2	Cord	2	12-21	14.00	Bronze	P	Y	Mag	Til	.....	Y	F	CH-H10	P	P	Un	Air	N	¾
Waterwitch....571-44	2 Port	1	2x1⅞	5.90	2-Cy.	3.0-3600	3.0-3600	40	2-	8¼	5	2	Cord	5	14-21	11.00	Bronze	P	Y	Mag	Til	.....	Y	F	CH-J8	P	P	Un	VP	N	¾
Waterwitch....571-15	2 Port	1	2¼x1⅞	7.40	2-Cy.	3.5-3600	3.5-3600	47	2-	8½	7	2	RR	14	14-21	12.00	X-1315	P	Y	Mag	Til	.....	Y	Pr	CH-8	P	P	Un	VP	N	¾
Waterwitch....571-26	2 Port	2	2¼x1⅞	14.90	2-Cy.	5.7-3400	5.7-3400	64	2-	8½	7	2	RR	14	14-21	12.00	X-1315	P	Y	Mag	Til	.....	Y	Pr	CH-8	P	P	Un	VP	N	1

ABBREVIATIONS:

*—Rewinding rope starter optional at extra cost
‡—4615 for Pinion
(1)—Champion Outboard Motors Co.
(2)—Evinrude Motors Div.
(3)—Johnson Motors Div.
(4)—Kiekhaefer Corp.
(5)—Muncie Gear Works, Inc.
(6)—Sears, Roebuck & Co. (Mfg. by Kissel Industries)
2-O—2 Cycle opposed
A—Antifriction bearing
AF—Alternate firing
AP—Antifriction and plain bearing
Bat—Battery
C—Choke
Ce—Centrifugal pump
CH—Champion Spark Plug Co.
Ch-V—Check Valve
CRT—Combination Rotary and third port
Cy—Cycle
F—Flooding
Joh—Johnson Carburetor
Mag—Magneto
Muf—Muffler
N—No
P—Plain Bearing
Pr—Primer
PV—Pressure Vacuum
RFP—Rubber Rotor Force Pum
Ro—Rotor Pump
Rot—Rotex Pump
RR—Rewinding Rope
RV—Rotary Valve
SP—Special Poppet Valve
Str—Stromberg Carburetor Div.
Til—Tillotson Carburetor
Un—Underwater
Vac—Vacturi Carburetor
VP—Vane Pump
Y—Yes



TRUCK SPECIFICATIONS

Definitions

Make and Model

Only Domestic Truck Models are listed.

Optional Units

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

Recommended Gross Vehicle Weight for Normal Service

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

Chassis Weight

The chassis weight listed includes the weight of the minimum standard wheelbase chassis with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

Standard Tire Size

The standard tire size listed is that which is included in the Chassis List Price.

Maximum Authorized Tire Size

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

Minimum Standard Wheelbase

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

Maximum Standard Wheelbase

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the bassis maker.

Maximum Brake Hp.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

Gear Ratio Range

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

Tractors

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

Key to Reference

c.f.—Cab Forward design.

c.o.e.—Cab-Over-Engine design.

(C)—Converted Chevrolet model.

(d)—For dump or tractor service only.

(D)—Diesel-engine equipped.

e.b.s.—Engine-between-seat design.

e.u.s.—Engine-under-seat design.

(F)—Converted Ford model.

(G)—Governor set not to exceed 45 m.p.h. on these models.

(N)—Not available as a tractor.

(T)—Designed for tractor use only.

(3) Available—All models available in either conventional or c.o.e. design, oversize power plants, oil engines and six-wheel construction.

(5) Condor—These models available with double drop bus frames.

(6) Federal—245 cu. in. engine and 11" clutch available on Models 16 and 76, 263 cu. in. engine and 11" clutch available on Models 16, 17, 76 and 77. 428 cu. in. engine available on Models 45, 55, 92 and 94. 501 cu. in. and 517 cu. in. engines available on Models 55 and 94. Oversize or two-speed rear axles available on Models 16, 17, 18, 20, 25, 29, 35, 45, 76, 77, 80, 85, 89, 90 and 92. Double reduction rear axles available on Models 20, 25, 29, 35, 45, 80, 85, 89, 90 and 92. Two- or three-speed auxiliary transmissions available on all models. Air brakes available on Models 25, 29, 35, 45, 55, 85, 89, 90, 92 and 94. Diesel engines available in all models except c.o.e. All above at extra cost.

(9)—Gramm—Models 31, 41, 46, 56, 71, 76, 86 and 96 both gasoline and diesel available with double drop bus frames of various wheelbases. 221 cu. in. engine available on Model 21. 263 cu. in. engine available on Models 31 and 41. 282 cu. in. engine and 5 speed transmission available on Models 41, 46 and 56. 320 cu. in. engine and 5 speed transmission available on Models 41, 46, 56 and 71. 404 cu. in. engine and larger 5 speed transmission available on Model 86. Oversize two speed and double reduction axles available on Models 21, 31, 41, 46, 56, 71, 76 and 86 both gasoline and diesel. All other equipment furnished at extra cost.

(10) Corbitt—Wheelbases optional—any wheelbase desired furnished at chassis list price.

(11) International Harvester—By "Normal operating conditions" (see definition of Gross Vehicle Weight for Normal Service) is meant operation on comparatively level terrain, over roads with a tractive resistance value of from 25 to 30 pounds per ton of gross vehicle weight and at controlled and uniform speeds within a range of not to exceed 45 m.p.h.

(a)—Available with Eaton Two Speed Axle designated KS models.

(b)—Available with IHC double reduction axle and designated KR model.

(c)—Comparable chassis available with Cummins Diesel engine and designated KD model.

(15) Sterling—Available with double reduction rear axle.

(16) Sterling—Diesel powered unit of comparable capacity available in addition to gasoline models.

(18) Willys—Standard tires 5.50/16—4 ply; Panel Delivery 6.00/16—4 ply; 6.00/16S—6 ply—optional.

(19) Marmon-Herrington—6 cylinder engine may be installed in these models.

(20) Truckstell—This model has a clark Automatic booster or auxillary engine with bore of 3¼, stroke 4 in., rating 47 h.p. at 3200, 94 ft. lb. torque at 1600 r.p.m. This in combination with Chevrolet 235 cu in. engine develops 286 ft. lb. torque and 140 hp.

Key to Abbreviation

REAR AXLE

Final Drive and Type

B—Bevel.

C—Chain.

D—Dead.

F—Full-floating.

Hy—Hypoid.

d—Dual range axle.

2—Double Reduction.

S—Spiral bevel.

W—Worm.

½—Semi-floating.

¾—Three-quarter floating.

Gear Ratios

(*) Ratios other than standard at extra cost

(**) Only one ratio.

Drive and Torque

A—Radius Rods and Torque Arm.

H—Hotchkiss (springs).

R—Radius Rods.

T—Torque Arm.

U—Torque Tube.

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.

2R—Rear Unit of Rear Axle Group.

4R—Forward and rear units of Rear Axle Group.

4F—Front Axle and Forward unit of Rear Axle Group.

4FR—Front Axle and Rear unit of Rear Axle Group.

6—All wheels.

TIRE SIZES

†—Rear 7.00/20—8 ply.

‡—Rear 7.50/20—8 ply.

•—Rear 7.00/16—6 ply.

●—Rear 6.50/20—32x6

♁—Rear 6.50/20.

°—Rear 7.00/16.

§—Rear 7.00/17—6 ply.

#—Rear 32x6 single.

x—Rear 32x6.

y—Front 10.50/24 single.

¶—Front 11.25/25 single.

‡‡—Front 11.25/24 single.

■—Rear 11.25/24.

▼—Rear 12.75/24.

△—Rear 13.50/24.

♦—Rear 12.00/24.

z—Front 7.00/20.

WEIGHTS

●—14,000 lb. when truck is equipped with two-speed rear axle and 8.25/20—10 ply tires.

°—These are shipping weights and do not include weight of gasoline or water.

(x)—Tire capacity governs gross load.

z—Chassis weight includes Cab.

1942 Truck Specifications

MAKE AND MODEL	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear, S-single rear) Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS No. of Cylinders, Bore and Stroke	Displacement	Torque lb. ft.	Maximum Brake H.P. at R.P.M. Given	No. of Forward Speeds	REAR AXLE Gear and Type	REAR AXLE Drive and Torque	REAR AXLE Gear Ratio Range in High
Avail- (3) C-100	Opt	Opt	11500	4000	6.50/20D	7.50/20	6-3½x4½	245	165	73 3000	4	SF	H	5.4 6.6
able C-200	Opt	Opt	12600	4200	7.00/20D	7.50/20	6-3½x4½	245	165	73 3000	4	SF	H	5.14 6.6
C-250	Opt	Opt	14000	4300	7.00/20D	8.25/20	6-3½x4½	245	165	73 3000	4	SF	H	5.14 6.6
C-300	Opt	Opt	16000	4800	7.50/20D	8.25/20	6-3⅝x4½	263	178	78-3100	4	SF	H	5.80 6.8
C-350	Opt	Opt	17000	4900	7.50/20D	9.00/20	6-3⅝x4½	262	188	85-3200	4	SF	H	5.80 6.8
C-400	Opt	Opt	20000	5400	8.25/20D	9.00/20	6-3¾x4¼	282	188	85 3200	5	SF	R	6.16 7.4
C-400L	Opt	Opt	20000	5550	8.25/20D	9.00/20	6-4x4¼	320	210	86 3200	4	SF	R	6.16 7.4
C-500	Opt	Opt	22000	6100	9.00/20D	9.00/20	6-4x4¼	320	222	95-2800	5	SF	R	5.20-7.8
C-550	Opt	Opt	23000	6800	9.00/20D	10.00/20	6-4¼x4⅜	381	270	99 2400	5	SF	R	5.20 7.8
C-600	Opt	Opt	26500	7400	10.00/20D	11.00/20	6-4¼x4⅜	404	290	106-2400	5	WF	R	6.8 10.25
C-650	Opt	Opt	26500	8000	10.00/20D	11.00/20	6-4⅜x5½	462	330	112 2300	5	WF	R	6.8 10.25
C-700	Opt	Opt	35000	8700	10.00/20D	12.00/20	6-4⅜x5½	517	365	126-2300	5	WF	R	6.8 10.25
Bantam	75	75	1700	850	4.00/15S	5.00/15	4 2.26 3½	50	34.1	22 3800	3	S	H	** 5.25
Brockway 78	138	164	13000	3965	6.00/20D	32x6	6-3⅞x4⅜	210	154	71-3100	4	SF	H	5.66 6.6
83	138	176	14000	4100	6.50/20D	7.50/20	6-3⅞x4⅜	244	180	80.5-3100	4	SF	H	5.66 6.6
88	150	176	15000	4500	6.50/20D	7.50/20	6-3⅞x4⅜	244	180	80.5-3100	4	SF	H	6.2 6.8
92	150	188	16000	4700	7.00/20D	8.25/20	6-3⅞x4⅜	244	180	80.5-3100	4	SF	H	5.83-6.8
94	156	188	18500	5050	7.50/20D	8.25/20	6-3⅞x4⅜	244	180	80.5 3100	4	SF	H	6.16 7.4
112	150	188	18000	5150	7.00/20D	8.25/20	6-3¾x4⅜	260	217	92-2800	4	SF	H	5.83 6.8
128	156	188	20000	5550	7.50/20D	8.25/20	6-3¾x4⅜	260	217	92-2800	4	SF	H	5.71 7.4
130-PS	164	206	20000	6250	34x7D	9.00/20	6-3⅞x4½	288	192	78 2650	5	SF	R	6.16 7.4
146	126	206	20000	6060	8.25/20D	9.00/20	6-4x4⅜	330	245	104-2800	5	SF	R	5.76 7.4
(T) 147	132	164		6000	8.25/20D	9.00/20	6-4x4⅜	330	245	104-2800	5	SFd	H	Dual Rge.
152	126	206	22000	6350	8.25/20D	9.00/20	6-4¼x4⅝	371	280	100-2500	5	SF	R	5.71-6.83
(T) 153	132	164		6400	8.25/20D	9.00/20	6-4¼x4⅝	371	280	100-2500	5	SF	H	6.14 7.8
(T) 154	132	164		6300	8.25/20D	9.00/20	6-4¼x4⅝	371	280	100 2500	5	SFd	H	Dual Rge.
(T) 156	132	164		6950	9.00/20D	10.00/20	6-4⅜x4⅝	405	305	112-2500	5	SFd	H	Dual Rge.
162	121	219	25000	7250	9.00/20D	10.00/20	6-4¼x4⅝	371	280	100 2500	5	SF	R	6.14 7.8
166	121	219	28000	7800	10.00/20D	11.00/20	6-4⅜x4⅝	405	305	112-2500	5	2F	R	5.63 8.59
170X	153	219	25000	7960	9.00/20D	10.00/22	6-4¼x4¾	381	276	106-2600	5	2F	R	5.78 7.35
175X	153	219	30000	8550	9.00/20D	11.00/22	6-4⅜x4¾	427	322	133-2600	5	2F	R	5.63 8.59
195X	153	219	28000	8650	10.00/20D	11.00/22	6-4¼x4¾	381	276	106-2600	5	2F	R	5.63 8.59
220X	153	219	34000	9050	11.00/20D	12.00/24	6-4⅜x4¾	427	322	133 2600	5	2F	R	6.06 8.82
240X	153	219	30000	8590	10.00/20D	11.00/24	6-4½x5¼	501	370	144-2400	5	2F	R	5.63 7.52
260X	195	219	34000	9720	11.00/22D	12.00/24	6-4½x5¼	501	370	144-2400	4	2F	R	6.06 8.82
260S	195	219	36000	10000	11.00/24D	12.00/24	6-4½x5¼	501	370	144 2400	4	2F	R	6.06 8.82
Chevrolet BK	115	115	4600	°2235	6.00/16S	15/6S	6-3½x3¾	216	174	90 3300	3	Hy	U	** 4.11
BJ	115	115	5000	°3665	6.00/16S	15/6S	6-3½x3¾	216	174	90 3300	3	Hy	U	** 4.55
BL	125	125	5200	°2400	15/6S	15/6S	6-3½x3¾	216	174	90 3300	3	Hy	H	** 4.55
BN	134	134	5800	°3770	7.00/17S	7.50/17-8S	6-3½x3¾	216	174	90 3300	4	Hy	H	** 4.55
MR	134	134	7700	°2970	6.00/20S†	7.50/20-8S	6-3¼x3¾	216	174	90-3300	4	HyF	H	5.43
MR	134	134	7700	°2975	6.00/20S†	7.50/20-8S	6-3⅞x3½	235	192	93-3100	4	HyF	H	5.43
MR	134	134	9500	°3110	6.00/20D	7.50/20 8	6-3½x3¾	216	174	90-3300	4	HyF	H	** 6.17
MR	134	134	9500	°3115	6.00/20D	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
(G) MR	134	134	•13500	°3380	6.50/20D‡	7.50/20-8	6-3½x3¾	216	174	90-3300	4	HyF	H	** 6.17
(G) MR	134	134	•13500	°3385	6.50/20D‡	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
MS	160	160	7700	°3225	6.00/20S†	7.50/20-8S	6-3½x3¾	216	174	90-3300	4	HyF	H	5.43
MS	160	160	7700	°3230	6.00/20S†	7.50/20-8S	6-3⅞x3½	235	192	93-3100	4	HyF	H	5.43
MS	160	160	9500	°3365	6.00/20D	7.50/20-8	6-3½x3¾	216	174	90-3300	4	HyF	H	** 6.17
MS	160	160	9500	°3370	6.00/20D	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
*MS	160	160	•13500	°3635	6.50/20D‡	7.50/20-8	6-3½x3¾	216	174	90-3300	4	HyF	H	** 6.17
*MS	160	160	•13500	°3640	6.50/20D‡	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
(c.o.e.) MU	109	109	7700	°3340	6.00/20S†	7.50/20-8S	6-3½x3¾	216	174	90 3300	4	HyF	H	5.43
(c.o.e.) MU	109	109	7700	°3345	6.00/20S†	7.50/20-8S	6-3⅞x3½	235	192	93 3100	4	HyF	H	5.43
(c.o.e.) MU	109	109	9500	°3480	6.00/20D	7.50/20-8	6-3½x3¾	216	174	90 3300	4	HyF	H	** 6.17
(c.o.e.) MU	109	109	9500	°3485	6.00/20D	7.50/20-8	6-3⅞x3½	235	192	93 3100	4	HyF	H	** 6.17
(G) (c.o.e.) MU	109	109	•13500	°3750	6.50/20D‡	7.50/20-8	6-3½x3¾	216	174	90 3300	4	HyF	H	** 6.17
(G) (c.o.e.) MU	109	109	•13500	°3755	6.50/20D‡	7.50/20-8	6-3⅞x3½	235	192	93 3100	4	HyF	H	** 6.17
(c.o.e.) MV	132	132	7700	°3415	6.00/20S†	7.50/20-8S	6-3½x3¾	216	174	90 3300	4	HyF	H	5.43
(c.o.e.) MV	132	132	7700	°3420	6.00/20S†	7.50/20-8S	6-3⅞x3½	235	192	93 3100	4	HyF	H	5.43

MAKE AND MODEL	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear, S-single rear) Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS No. of Cylinders, Bore and Stroke	Displacement	Torque lb. ft.	Maximum Brake H.P. at R.P.M. Given	No. of Forward Speeds	REAR AXLE Gear and Type	REAR AXLE Drive and Torque	REAR AXLE Gear Ratio Range in High
Dodge—Cont. WH-45	136	220	15000	3915	6.50/20D	8.25/20	6-3⅛x4½	250	200	120-3800	5	HyF	H	5.11-7.16
WHA-45	136	220	16000	4015	6.50/20D	9.00/20	6-3⅛x4½	250	200	120 3800	5	SFd	H	Dual Rge.
(c.o.e.) WHM-45	105	159	15000	4290	6.50/20D	8.25/20	6-3⅛x4½	250	200	120-3800	5	HyF	H	5.11-7.16
(c.o.e.) WHMA-45	105	159	16000	4390	6.50/20D	9.00/20	6-3⅛x4½	250	200	120-3800	5	SFd	H	Dual Rge.
WL-50	152	205	20000	5650	7.00/20D	10.00/20	6-3¾x5	331	240	110-3200	5	SF	H	6.16-7.40
WLA-50	152	205	20000	5875	7.00/20D	10.00/20	6-3¾x5	331	240	110 3200	5	SFd	H	Dual Rge.
(D) WLD-50	152	205	20000	5915	7.00/20D	10.00/20	6-3¾x5	331	240	100 2600	5	SF	H	6.16-7.40
(D) WLDA-50	152	205	20000	6140	7.00/20D	10.00/20	6-3¾x5	331	240	100 2600	5	SFd	H	Dual Rge.
WK-60	152	205	20000	5770	8.25/20D	10.00/20	6-3¾x5	331	240	110-3200	5	SF	H	6.16-7.40
WKA-60	152	205	20000	5995	8.25/20D	10.00/20	6-3¾x5	331	240	110 3200	5	SFd	H	Dual Rge.
(D) WKD-60	152	205	20000	6035	8.25/20D	10.00/20	6-3¾x5	331	240	100 2600	5	SF	H	6.16-7.40
(D) WKDA-60	152	205	20000	6260	8.25/20D	10.00/20	6-3¾x5	331	240	100 2600	5	SFd	H	Dual Rge.
Duplex T	136	190	18000	6000	8.25/20D	9.00/20	6-4x4¼	320	225	95 2800	5	SF	H	6.16-7.40
SC	166	190	22000	7600	9.00/20D	9.75/20	6-4¼x4¾	369	235	99 2600	5	2F	R	6.36-8.40
SAC	166	210	26000	8360	9.75/20D	10.50/20	6-4⅜x4¾	428	280	107 2600	5	2F	R	7.37-9.41
SAC-H	166	210	28000	8630	9.75/20D	10.50/20	6-4½x4¾	453	325	110 2200	5	2F	R	7.37-9.41
K	166	210	32000	9750	10.50/20D	11.25/20	6-4½x5½	525	340	112 2200	5	2F	R	6.86-9.20
K-H	166	210	32000	10200	10.50/20D	11.25/20	6-4⅝x5½	529	385	132 2300	5	2F	R	6.86-9.20
L	172	210	40000	11000	11.25/24D	12.00/24	6-4½x5½	525	385	135-2200	12	2F	R	7.97-12.14
Federal 8	102	128	7000	2500	6.00/16S	7.50/17S	6-3¼x4⅛	205	144	66-3500	4	SF	H	4.11-4.86
(6) 16	135	250	13000	3960	6.00/20S	7.50/20	6-3⅞x4¼	232	164	75-3000	4	SF	H	5.14-6.66
(6) 17	135	250	14000	4250	6.00/20&S	8.25/20	6-3½x4¼	245	174	79-3000	4	SF	H	5.14-6.65
(6) 18	135	250	15000	4350	6.00/20D	8.25/20	6-3⅝x4¼	263	187	82 3000	4	SF	H	5.14-6.66
(6) 20	135	250	17500	4950	6.50/20D	9.00/20	6-3⅝x4¼	263	187	82 3000	4	SF	H	5.83-6.80
(6) 25	135	250	19000	5200	7.00/20D	9.00/20	6-3¾x4¼	282	208	85-2900	4	SF	H	5.71-7.40
(6) 29	135	250	20000	5900	7.50/20D	10.00/20	6-4x4¼	320	244	95-2800	5	SF	H	5.71-7.40
(6) 35	140	255	22500	6700	8.25/20D	10.00/20	6-4¼x4½	383	285	114 2800	5	SF	H	5.71-7.40
(6) 45	140	255	24000	7300	9.00/20D	11.00/24	6-4¼x4¾	404	307	125 2800	5	SF	H	5.57-7.80
(6) 55	140	255	26000	8000	9.00/20D	11.00/24	6-4¼x4¾	404	307	125 2800	5	2F	R	7.09-9.50
62	141	211	35000	10400	11.00/20D	12.00/24	6-4½x5¼	501	400	150-2300	5	2F	R	3.07-10.42
(6) (c.o.e.) 76	104	215	13000	4000	6.00/20S	7.50/20	6-3⅞x4¼	232	164	75-3000	4	SF	H	5.14-6.66
(6) (c.o.e.) 77	104	215	14000	4300	6.00/20&S	8.25/20	6-3½x4¼	245	174	79-3000	4	SF	H	5.14-6.66
(6) (c.o.e.) 80	104	215	17500	4300	6.50/20D	9.00/20	6-3⅝x4¼	263	187	82-3000	4	SF	H	5.83-6.80
(6) (c.o.e.) 85	104	215	19000	5250	7.00/20D	9.00/20	6-3¾x4¼	282	208	85-2900	4	SF	H	5.71-7.40
(6) (c.o.e.) 89	104	215	20000	5950	7.50/20D	10.00/20	6-4x4¼	320	244	95-2800	5	SF	H	5.71-7.40
(6) (c.o.e.) 90	116	173	22500	6600	8.25/20D	10.00/20	6-4¼x4½	383	285	114-2800	5	SF	H	5.71-7.40
(6) (c.o.e.) 92	116	173	24000	7200	9.00/20D	11.00/24	6-4¼x4¾	404	307	125-2800	5	SF	H	5.57-7.80
(6) (c.o.e.) 94	116	173	28000	7900	9.00/20D	11.00/24	6-4¼x4¾	404	307	125-2800	5	2F	R	7.09-9.50
Ford Reg. 21T-81	134	134			6.00/20&S	8.25/20-10	8-3⅛x3¾	221	156	90-3800	4	FS	H	5.14-6.67
Reg. 2GT-81	134	134			6.00/20&S	8.25/20-10	6-3.3x4.4	226	180	90-3300	4	FS	H	5.14-6.67
Reg. 29T-81	134	134			6.00/20&S	8.25/20-10	8-3⅛x3¾	239	176	100-3800	4	FS	H	5.14-6.67
Reg. 218T-81	158	158			6.00/20&S	8.25/20-10	8-3⅛x3¾	221	156	90 3800	4	FS	H	5.14-6.67
Reg. 2G8T-81	158	158			6.00/20&S	8.25/20-10	6-3.3x4.4	226	180	90-3300	4	FS	H	5.14-6.67
Reg. 298T-81	158	158			6.00/20&S	8.25/20-10	8-3⅛x3¾	239	176	100-3800	4	FS	H	5.14-6.67
(c.o.e.) 211W-81	101	101			6.00/20&S	8.25/20-10	8-3⅛x3¾	221	156	90 3800	4	FS	H	5.14-6.67
(c.o.e.) 291W-81	101	101			6.00/20&S	8.25/20-10	8-3⅛x3¾	239	176	100 3800	4	FS	H	5.14-6.67
(c.o.e.) 21W-81	134	134			6.00/20&S	8.25/20-10	8-3⅛x3¾	221	156	90-3800	4	FS	H	5.14-6.67
(c.o.e.) 29W-81	134	134			6.00/20&S	8.25/20-10	8-3⅛x3¾	239	176	100-3800	4	FS	H	5.14-6.67
(c.o.e.) 218W-81	158	158			6.00/20&S	8.25/20-10	8-3⅛x3¾	221	156	90 3800	4	FS	H	5.14-6.67
(c.o.e.) 298W-81	158	158			6.00/20&S	8.25/20-10	8-3⅛x3¾	239	176	100 3800	4	FS	H	5.14-6.67
1 Ton 21Y-81	122	122			6.00/17&S	7.50/17	8-3⅛x3¾	221	156	90-3800	3	FS	H	4.86-
1 Ton 2GY-81	122	122			6.00/17&S	7.50/17	6-3.3x4.4	226	180	90 3300	3	FS	H	4.86-
1 Ton 2NY-81	122	122			6.00/17&S	7.50/17	4-3⅞x3¾	120	84	40 3200	4	FS	H	-6.67
¾ Ton 21D-81	122	122			6.50/16-S	7.00/16	8-3⅛x3¾	221	156	90 3800	3	FS	H	4.86-
¾ Ton 2GD-81	122	122			6.50/16-S	7.00/16	6-3.3x4.4	226	180	90-3300	3	FS	H	4.86-
¾ Ton 2ND-81	122	122			6.50/16-S	7.00/16	4-3⅞x3¾	120	84	40-3200	4	FS	H	6.67
Com. Car 21C-81	114	114			6.00/16S	6.50/16	8-3⅛x3¾	221	156	90-3800	3	S¾	H	3.78-4.11
Com. Car 2GC-81	114	114			6.00/16S	6.50/16	6-3.3x4.4	226	180	90-3300	3	S¾	H	3.78-4.11
Com. Car 2NG-81	114	114			6.00/16S	6.50/16	4-3⅞x3¾	120	84	40-3200	3	S¾	H	4.55-

	(c.o.e.) MV	132	132	9500	°3555	6.00/20D	7.50/20-8	6-3½x3⅜	216	174	90-3300	4	HyF	H	** 6.17
	(c.o.e.) MV	132	132	9500	°3560	6.00/20D	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
	(G) (c.o.e.) MV	132	132	•13500	°3825	6.50/20D‡	7.50/20-8	6-3½x3⅜	216	174	90-3300	4	HyF	H	** 6.17
	(G) (c.o.e.) MV	132	132	•13500	°3830	6.50/20D‡	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
	(c.o.e.) MW	158	158	7700	°3645	6.00/20S†	7.50/20-8S	6-3½x3⅜	216	174	90-3300	4	HyF	H	5.43
	(c.o.e.) MW	158	158	7700	°3650	6.00/20S†	7.50/20-8S	6-3⅞x3½	235	192	93-3100	4	HtF	H	5.43
	(c.o.e.) MW	158	158	9500	°3785	6.00/20D	7.50/20-8	6-3½x3⅜	216	174	90-3300	4	HyF	H	** 6.17
	(c.o.e.) MW	158	158	9500	°3790	6.00/20D	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
	(G) (c.o.e.) MW	158	158	•13500	°4055	6.50/20D‡	7.50/20-8	6-3½x3⅜	216	174	90-3300	4	HyF	H	** 6.17
	(G) (c.o.e.) MW	158	158	•13500	°4060	6.50/20D‡	7.50/20-8	6-3⅞x3½	235	192	93-3100	4	HyF	H	** 6.17
Condor	DZA-1	131	155	10000	3200	6.00/20S	32x6-8p	4-3⅜x4⅜	210	125	41-2200	4	SF	H	4.62-6.16
(5)	DZB-1	131	227	12000	3500	6.00/20S	32x6-8p	4-3⅜x4⅜	210	125	41-2200	4	SF	H	5.1-6.83
(5)	DZC-1	131	227	14000	3900	6.00/20S	8.25/20	4-3⅜x4⅜	210	125	41-2200	4	SF	H	4.57-6.6
(5)	DZD-1	131	227	15000	4500	6.00/20S	8.25/20	4-3⅜x4⅜	210	125	41-2200	4	SF	H	4.12-6.8
(5)	DZE-1	131	227	14000	4100	6.00/20S	8.25/20	6-3⅜x4¼	282	174	84-2800	4	SF	H	4.57-6.2
(5)	DZF-1	131	227	15000	4900	6.50/20D	8.25/20	6-3⅜x4¼	282	174	84-2800	4	SF	H	4.12-6.8
(5)	DZG-1	131	227	17000	5400	7.00/20D	9.00/20	6-3⅜x4¼	282	174	84-2800	5	SF	H	5.71-7.4
(5)	DZH-1	131	227	19000	5600	7.00/20D	9.75/20	6-3⅜x4¼	282	174	84-2800	5	SF	H	4.44-7.4
(5)	DZJ-1	131	227	21500	5900	7.50/20D	10.50/20	6-3⅜x4¼	282	174	84-2800	5	SF	H	5.25-7.8
Dart	30G	139	252	12500	4540	32x6D	7.50/20	6-3⅜x4¼	282	176	73-2800	4	SF	H	5.14-6.20
	40G	139	252	14000	5190	32x6D	8.25/20	6-3⅜x4¼	282	176	73-2800	5	SF	H	5.83-6.80
	50G	139	252	17000	5540	34x7D	9.75/20	6-4x4¼	320	204	84-2800	5	SF	H	6.16-7.40
	50G sp.	139	252	19000	6190	8.25/20D	9.75/20	6-4¼x4⅜	404	300	112-2500	5	SF	H	6.16-7.40
	60G	139	252	20000	6765	9.00/20D	10.50/20	6-4¼x4½	383	262	106-2800	5	SF	H	5.57-7.80
	70DR	159	252	21000	7100	9.75/20D	10.50/20	6-4¼x4½	393	262	106-2800	10	2F	H	6.85-9.41
	80W	139	252	23000	7994	9.75/20D	10.50/20	6-4⅝x5½	517	365	125-2300	5	WF	H	6.80-10.6
	100W	142	252	26500	9594	9.75/20D	11.25/20	6-4⅝x5½	558	410	144-2200	15	WF	H	6.02-9.20
Diamond T	201	119	119	8000	2750	6.00/16S	7.50/16	6-3⅞x4½	229	170	73-3000	3	SF	H	4.5-5.1
	306	127	150	11000	3400	6.00/17S	7.50/20	6-3⅞x4½	229	170	73-3000	4	SF	H	5.57-6.33
	404	139	163	12200	4000	6.00/20D	7.50/20	6-3½x4½	245	174	77-2800	4	SF	H	5.57-6.33
	404H	139	163	13500	4100	6.00/20D	7.50/20	6-3½x4½	245	174	77-2800	4	SF	H	5.57-6.33
	406	139	175	13500	4200	6.50/20D	7.50/20	6-3⅝x4½	263	191	82-2800	4	SF	H	5.57-6.33
	509	151	175	14700	4650	7.00/20D	8.25/20	6-3⅝x4½	263	191	82-2800	4	SF	H	5.57-6.33
	509H	151	175	16200	4850	7.00/20D	8.25/20	6-3⅝x4½	263	191	82-2800	4	SF	H	5.57-6.33
	612	151	175	16200	5000	7.50/20D	9.25/20	6-3⅞x4¼	282	214	86-2800	4	SF	H	5.57-6.33
	612H	151	175	18000	5200	7.50/20D	8.25/20	6-3⅞x4¼	282	214	86-2800	4	SF	H	6.42-7.16
	614	151	175	16000	5450	7.50/20D	9.00/20	6-4x4¼	320	228	96-2800	5	SF	H	6.42-7.16
	614DR	151	175	18000	5450	8.25/20D	8.25/20	6-4x4¼	320	228	96-2800	5	2F	H	7.32-8.17
	614H	151	175	18800	5600	9.00/20D	9.75/20	6-4x4¼	320	228	96-2800	5	SF	H	6.83-7.80
	614HDR	151	175	18800	5700	9.00/20D	9.75/20	6-4x4¼	320	228	96-2800	5	2F	H	7.35-8.40
	702	154	208	22000	7000	8.25/20D	9.75/20	6-4¼x4½	383	266	99-2600	5	SF	H	Opt.
	805	172	208	22500	7600	9.00/20D	9.75/22	6-4¼x4⅜	404	300	114-2400	5	SF	R	Opt.
	806	172	208	26000	8200	9.00/20D	10.50/22	6-4¼x4⅜	404	300	114-2400	5	2F	R	Opt.
	(D) 513	151	175	14700	5700	6.00/20D	8.25/20	6-3½x4½	260	178	74-2400	4	SFD	H	Dual Rge.
	(D) 615	151	175	18000	6400	7.00/20D	9.00/20	6-3⅝x4½	298	208	82-2400	5	SFD	H	Dual Rge.
	(D) 807	172	208	26000	9000	9.00/20D	10.50/22	6-4x5	377	270	100-2200	5	2F	R	Opt.
	(D) 808	172	208	26000	9000	9.00/20D	10.50/22	6-4⅝x5¼	474	350	113-1800	5	2F	R	Opt.
	(D) 910	172	208	36000	12500	9.00/20D	10.50/24	6-4⅞x6	672	500	150-1800	12	2F		Opt.
	900	172	208	30000	9500	9.00/20D	10.50/24	6-4⅝x5¼	529	365	132-2100	5	2F	R	Opt.
	(c.f.) 306SC	106	150	12000	3500	6.00/17D	7.50/17	6-3⅞x4½	229	170	73-3000	4	SF	H	Opt.
	(c.f.) 404SC	106	163	13000	4150	6.00/20D	7.50/20	6-3½x4½	245	174	77-2800	4	SF	H	Opt.
	(c.f.) 404SCH	106	163	14700	4250	6.00/20D	8.25/20	6-3½x4½	245	174	77-2800	4	SF	H	Opt.
	(c.f.) 509SC	106	163	14700	4650	7.00/20D	8.25/20	6-3⅝x4½	263	191	82-2800	4	SF	H	5.57-6.38
	(c.f.) 612SC	106	176	16200	5200	7.50/20D	9.00/20	6-3⅞x4¼	282	214	86-2800	4	SF	H	5.57-6.33
	(c.f.) 614SC	106	163	18000	5650	7.50/20D	9.00/20	6-4x4¼	320	228	96-2800	5	SF		6.42-7.16
	(c.o.e.) 201C	119	119	8000	2800	6.00/20S	7.50/20	6-3⅞x4½	229	170	73-3000	4	SF	H	5.57-6.33
	(c.o.e.) 404C	96	192	13500	4650	6.00/20D	7.50/20	6-3½x4½	245	174	77-2800	4	SF	H	5.57-6.33
	(c.o.e.) 509C	96	192	15550	5050	7.00/20D	8.25/20	6-3⅝x4½	263	191	82-2800	4	SF	H	5.57-6.33
	(c.o.e.) 612C	96	192	17000	5400	7.50/20D	8.25/20	6-3⅞x4¼	282	214	86-2800	4	SF	H	5.57-6.33
	(c.o.e.) 614C	96	192	18000	6000	7.50/20D	9.00/20	6-4x4¼	320	228	96-2800	5	SF	H	6.42-7.16
	(c.o.e.) 702C	96	192	22500	7300	8.25/20D	10.00/20	6-4¼x4⅜	404	300	114-2400	5	SF	H	Opt.
	(c.o.e.) 805C	96	192	22500	7500	9.00/20D	9.75/20	6-4¼x4⅜	404	300	114-2400	5	SF	H	Dual Rge.
	(c.o.e.) 806C	96	192	26000	7800	9.00/20D	10.50/20	6-4¼x4⅜	404	300	114-2400	5	2F	H	6.85-7.37
	(D) (c.o.e.) 513C	96	192	14700	6400	6.00/20D	8.25/20	6-3½x4½	260	178	74-2400	4	SFD	H	Dual Rge.
	(D) (c.o.e.) 615C	96	192	18000	7100	7.00/20D	9.00/20	6-3⅝x4½	298	208	82-2400	5	SFD	H	Dual Rge.
	Pak-Age-Car....91	90	90	5500	.....	6.00/16D	7.00/16	4-3⅞x3⅞	133	93	32-2400	3	.....	.....	** 5.30
	Pak-Age-Car....117	116	116	5500	.....	6.00/16D	7.00/16	4-3⅞x3⅞	133	93	32-2400	3	.....	.....	** 5.30
Dodge	WC	116	.....	4200	2240	6.00/16S	6.50/16S	6-3¼x4⅜	217	172	90-3000	3	Hy	H	3.73-4.78
	WD-15	120	.....	5000	2465	15/6S	15/6S	6-3¼x4⅜	217	172	95-3600	3	Hy	H	3.73-4.78
	WD-20	120	133	6400	2665	6.50/16*S	6.00/20	6-3¼x4⅜	230	184	105-3600	3	HyF	H	3.90-4.89
	WF-20	126	160	7200	3305	6.00/20*S	6.50/20	6-3⅜x4¼	236	190	115-3800	4	HyF	H	5.11-6.83
	WF-30	126	190	13500	3305	6.00/20*S	7.50/20	6-3⅜x4¼	236	190	115-3800	4	HyF	H	5.11-6.83
	WFA-30	126	190	14000	3430	6.00/20*S	8.25/20	6-3⅜x4¼	236	190	115-3800	4	SFd	H	Dual Rge.
	(c.o.e.) WFM-35	105	159	13500	3455	6.00/20*S	7.50/20	6-3⅜x4¼	236	190	115-3800	4	HyF	H	5.11-6.83
	(c.o.e.) WFMA-35	105	159	14000	3580	6.00/20*S	8.25/20	6-3⅜x4¼	236	190	115-3800	4	SFd	H	Dual Rge.
	WG-40	136	220	15000	3865	6.00/20D	8.25/20	6-3⅜x4½	250	200	120-3800	5	HyF	H	5.11-7.16
	WGA-40	136	220	16000	3965	6.00/20D	9.00/20	6-3⅜x4½	250	200	120-3800	5	SFd	H	Dual Rge.
	(c.o.e.) WGM-40	105	159	15000	4240	6.00/20D	8.25/20	6-3⅜x4½	250	200	120-3800	5	HyF	H	5.11-7.16
	(c.o.e.) WGMA-40	105	159	16000	4340	6.00/20D	9.00/20	6-3⅜x4½	250	200	120-3800	5	SFd	H	Dual Rge.

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Gramm	11A	131	155	6500	2850	7.00/16S	7.50/16S	6-3¼x4½	205	144	66-3500	3	SF	H	** 5.10
(9)	21A	131	155	10000	3000	6.00/20S	32x6-8p	6-3¼x4½	205	144	66-3500	4	SF	H	4.62-6.17
(9)	31A	131	227	12000	3300	6.00/20S	32x6-8p	6-3⅜x4⅝	221	154	67-3000	4	SF	H	5.10-6.83
(9)	41A	131	227	14000	3750	6.00/20S	8.25/20	6-3⅜x4⅝	221	154	67-3000	4	SF	H	4.57-6.60
(9)	46A	131	227	14000	3900	6.00/20S	8.25/20	6-3⅝x4¼	263	187	82-3000	4	SF	H	4.57-6.20
(9)	56A	131	227	15000	4700	6.50/20D	8.25/20	6-3⅝x4¼	263	187	82-3000	4	SF	H	4.12-6.80
(9)	71A	131	227	17000	5200	7.00/20D	9.00/20	6-3⅜x4¼	282	208	85-2900	5	SF	H	5.71-7.40
(9)	76A	131	227	19000	5400	7.00/20D	9.75/20	6-4x4¼	320	244	95-2800	5	SF	H	4.44-7.40
(9)	86A	131	227	21500	5700	7.50/20D	10.50/20	6-4x4¼	320	244	95-2800	5	SF	H	5.25-7.80
(9)	96A	131	227	28000	8000	9.00/20D	10.50/20	6-4¼x4⅜	404	294	118-2800	5	2F	H	5.63-8.59
(D) (9)	D46A	131	227	14000	4100	6.00/20S	8.25/20	6-3½x4½	260	178	77-2800	4	SF	H	4.57-5.66
(D) (9)	D56A	131	227	15000	4900	6.50/20D	8.25/20	6-3½x4½	260	178	77-2800	4	SF	H	4.12-6.80
(D) (9)	D71A	131	227	17000	5400	7.00/20D	9.00/20	6-3⅜x4½	298	194	84-2600	5	SF	H	5.72-6.29
(D) (9)	D76A	131	227	19000	5700	7.00/20D	9.75/20	6-3⅝x5½	317	224	90-2300	5	SF	H	4.44-7.40
(D) (9)	D86A	131	227	21500	6000	7.50/20D	10.50/20	6-3⅞x5½	389	284	98-2100	5	SF	H	5.25-6.83
(D) (9)	D96A	131	227	23000	8100	9.00/20D	10.50/20	6-3⅞x5½	389	284	96-2100	5	2F	H	5.63-8.59
	GF	150	225	24000	9050	9.75/20D	10.50/20	6-5¼x6	779	535	143-1600	4	2F	H	4.29-7.2
Hug	85W	125	125	23000	7150	8.25/20D	9.00/20	6-4x4¼	320	210	83-2500	5	SF	H	**-7.16
	87W	134	134	31000	9540	11.00/20D	11.00/20	6-4¼x4⅝	404	266	95-2200	5	2F	T	**-9.2
	92U	134	134	37000	11600	11.00/24D	12.00/24	6-4⅝x5⅝	517	365	125-2200	5	2F	T	**-10.2
	(D) D92U	134	134	37000	12065	11.00/24D	12.00/24	6-4⅞x6	448	370	100-1800	5	2F	T	**-10.2
	98	171	171	47500	13615	12.00/24D	14.00/24	6-5x5⅝	677	480	144-1800	8	2F	T	**-10.2
	(D) D98	171	171	47500	13615	12.00/24D	14.00/24	6-4⅞x6	672	500	150-1800	8	2F	T	**-10.2
International	K-1	113	125	4400	2190	6.00/16S	7.00/16S	6-3⅛x4½	213	160	82-3400	3	SF	H	3.72-5.11
	K-2	125	125	5200	2225	6.00/16S	7.00/16S	6-3⅛x4½	213	160	82-3400	3	SF	H	3.72-5.11
	K-3	113	130	6650	2940	7.00/16S	6.50/16	6-3⅛x4½	213	160	82-3400	3	SF	H	4.22-5.28
	K-4	113	159	10000	3175	32x6S	7.50/20	6-3⅛x4½	213	160	82-3400	4	SF	H	5.28-6.66
	K-5	135	177	13500	3585	6.00/20D	8.25/20	6-3⅛x4½	233	181	93-3400	4	SF	H	5.28-6.66
	K-6	134	176	14500	4380	6.50/20D	8.25/20	6-3⅛x4½	251	200	100-3200	4	SF	H	5.62-7.16
	K-7	134	176	16500	4810	7.00/20D	9.00/20	6-3⅛x4½	269	222	103-3000	5	SF	H	5.62-7.16
	K-8	137	197	20000	6155	7.50/20D	10.00/20	6-3⅛x4½	318	241	103-2800	5	SF	H	5.62-7.16
	K-10	149	197	22500	7100	9.00/20D	11.00/20	6-4⅛x4½	361	236	111-2700	5	SF	H	4.55-6.43
	KR-11	149	197	27000	8100	36x8	12.00/20	6-4⅛x5	401	306	114-2600	5	2SF	H	5.02-9.03
	A-8	160	225	40000	11845	10.00/20D	40x10	6-5x5½	648	460	140-2100	5	2SF	H	4.95-7.98
(c.o.e.)	K-5	87	117	14000	3805	6.00/20D	8.25/20	6-3⅛x4½	233	181	93-3400	4	SF	H	5.28-6.66
(c.o.e.)	K-7	87	153	17000	5090	7.00/20D	9.00/20	6-3⅛x4½	269	222	103-3000	5	SF	H	5.28-6.66
(c.o.e.)	K-8	94	142	20000	6700	7.50/20D	10.00/20	6-3⅛x4½	318	241	103-2800	5	SF	H	5.62-7.16
(c.o.e.)	KR-11	94	142	28000	8420	36x8	12.00/20	6-4⅛x5	401	306	114-2600	5	2SF	H	5.02-9.03
Kenworth	(D) 505	168	204	24000	7350	9.00/20D	10.00/20	4-4⅞x6	448	335	100-1800	5	SF	H	5.25-7.80
	(D) 506	168	204	24900	7700	9.00/20D	11.00/20	4-4⅞x6	448	335	100-1800	5	2F	H	6.85-8.64
	(D) 507	168	204	32000	8600	10.00/20D	11.00/22	4-4⅞x6	448	335	100-1800	5	2F	H	6.02-9.20
	(D) 511	187	205	23000	10700	9.00/22D	10.00/22	6-4⅞x6	672	500	150-1800	4	DF	R	6.04-10.5
	(D) 521	190	225	35000	10000	9.00/20D	11.00/20	6-4⅞x6	672	500	150-1800	4	2F	H	6.02-9.20
	525	168	204	26300	8400	9.00/20D	11.00/24	6-4½x5½	525	395	135-2200	5	2F	H	6.85-9.41
	526	168	204	32600	8700	10.00/20D	11.00/22	6-4½x5½	525	395	135-2200	5	2F	H	6.02-9.20
	536	159	195	18000	5350	7.50/20D	9.00/20	6-4x4¼	320	230	110-3100	5	SF	H	5.84-6.80
	537	159	195	21000	5550	7.50/20D	10.00/20	6-4x4¼	320	230	110-3100	5	SF	H	6.17-7.40
	538	159	195	24000	6050	8.25/20D	10.00/20	6-4x4½	320	230	110-3100	5	SF	H	5.25-7.80
	529	168	204	24900	7400	8.25/20D	10.00/20	6-4¼x4⅜	404	300	112-2600	5	SF	H	5.25-7.80
	530	168	204	24900	7709	9.00/20D	11.00/20	6-4¼x4⅜	404	300	112-2600	5	2F	H	6.83-9.41
	531	168	204	32000	8150	10.00/20D	11.00/24	6-4¼x4⅜	404	300	112-2600	5	2F	H	6.02-9.20
La France-Republic	EH5B	175	215	18000	7150	8.25/20D	9.00/20	6-4x4¼	320	210	86-3000	5	SF	R	5.71-7.40
	EH5D	175	215	18000	7225	8.25/20D	9.00/20	6-4x4¼	320	210	86-3000	5	2F	R	7.35-8.21
	EH6B	175	215	20000	7250	8.25/20D	9.75/20	6-4x4¼	320	210	86-3000	5	SF	R	5.57-7.80
	EH6D	175	215	20000	7325	8.25/20D	9.75/20	6-4x4¼	320	210	86-3000	5	2F	R	5.77-8.40
	FH5B	175	215	22500	7600	9.00/20D	9.75/20	6-4¼x4⅜	404	296	97-2400	5	SF	R	5.57-7.80
	FH5D	175	215	22000	7675	9.00/20D	9.75/20	6-4¼x4⅜	404	296	97-2400	5	2F	R	5.77-8.40
	HH7	175	215	26000	8475	9.75/20D	10.50/22	6-4¼x4⅜	404	296	97-2400	5	2F	R	6.85-9.41
	KH2	175	215	27500	8900	9.75/20D	10.50/24	6-4⅝x5½	517	368	125-2300	5	2F	R	6.85-9.41
	MH5	175	215	32000	9750	9.75/20D	10.50/24	6-4⅝x5½	462	328	111-2400	5	2F	R	6.86-9.20
Reo	19	120	235	.....	3760	6.00/20xD	7.50/20	6-3⅜x4¼	228	177	83-3200	4	SF	H	5.14-6.7
	19R	120	235	.....	3860	6.00/20xD	8.25/20	6-3⅜x4¼	228	177	83-3200	4	SF	H	4.85-6.8
	20	120	235	.....	4320	6.00/20D	8.25/20	6-3½x4¼	245	191	89-3100	4	SF	H	4.85-6.8
	21	120	235	.....	4820	7.00/20D	8.25/20	6-3½x4¼	245	191	89-3100	4	SF	H	5.71-7.4
	21R	120	235	.....	4970	7.00/20D	9.00/20	6-3½x4¼	245	191	89-3100	4	SF	H	6.16-7.4
	22	120	235	.....	5825	7.50/20D	9.00/20	6-3½x5	288	221	88-2800	4	SF	H	6.16-7.4
	22R	120	235	.....	6025	7.50/20D	9.75/20	6-3½x5	288	221	88-2800	4	SF	H	5.25-7.8
	23	120	235	.....	6525	8.25/20D	9.75/20	6-3⅝x5	310	240	93-2700	5	2F	H	7.35-8.4
	23R	120	235	.....	6815	8.25/20D	9.75/20	6-3⅝x5	310	240	93-2700	5	2F	H	8.59
	25	120	235	.....	7150	9.00/20D	11.00/20	6-4¼x4⅜	404	288	106-2600	5	2F	H	8.59-1.0
	27	132	220	.....	8586	10.00/20D	11.25/20	6-4⅝x5½	517	369	127-2400	5	2F	H	9.47-8.81
	OSL41	145	235	.....	6250	9.00/20D	9.75/20	6-3⅝x5	310	234	93-2700	4	2F	H	7.35-8.4
	NWL41	145	235	.....	8426	9.75/20D	9.75/20	6-3⅝x5	310	234	93-2700	4	2F	H	8.59
Sterling	(15) MB75	178	218	18000	6300	7.50/20D	9.00/20	6-4x4¼	320	210	86-3000	5	SF	H	5.72-7.40
	(15) MB85	178	218	20000	6575	8.25/20D	9.75/20	6-4x4¼	320	210	86-3000	5	SF	H	5.57-7.80
	MC87	178	218	22600	7200	8.25/20D	9.75/20	6-4x4¼	320	210	86-3000	5	CD	R	7.74-9.56

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1942 Truck Specifications

MAKE AND MODEL	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear		ENGINE DETAILS				No. of Forward Speeds	REAR AXLE		
	Minimum Standard	Maximum Standard			Standard Front and Rear	Maximum Authorized Tire Size (Duals unless noted)	No. of Cylinders Bore and Stroke	Displacement	Torque lb. ft.	Maximum Brake H.P. at R.P.M. Given		Gear and Type	Drive and Torque	Gear Ratio Range in High
Sterling—Cont.														
.....(15-16) MB90	178	218	22000	6950	8.25/20D	9.75/20	6-4½x4¾	381	270	90-2400	5	SF	H	5.57-7.80
.....(16) MC96	178	218	24000	7825	9.00/20D	9.75/22	6-4½x4¾	381	270	90-2400	5	CD	R	7.74-9.56
.....(16) MD96	178	218	24000	7450	9.00/20D	9.75/22	6-4½x4¾	381	270	90-2400	5	2F	H	6.85-9.41
.....(16) JB90	175	215	22000	7600	9.00/20D	9.75/20	6-4¼x4¾	404	286	97-2400	5	SF	R	5.57-7.80
.....(15-16) HD105	175	215	26000	8600	9.75/20D	10.50/22	6-4¼x4¾	404	286	97-2400	5	2F	R	6.85-9.41
.....(16) HD110	175	215	27500	9000	9.75/20D	10.50/24	6-4⅜x5⅛	462	328	111-2400	4	2F	R	6.85-9.41
.....(16) HD115	175	215	30000	9175	9.75/20D	10.50/24	6-4⅜x5⅛	462	328	111-2400	4	2F	R	6.86-9.20
.....(16) JD135	175	215	34000	10025	9.75/20D	10.50/24	6-4⅝x5⅛	517	369	125-2300	5	2F	R	6.86-9.20
.....(16) JD137	175	215	34000	9975	9.75/20D	10.50/24	6-4⅝x5⅛	517	369	125-2300	5	2F	R	6.86-9.20
.....(16) HD145	175	215	36000	10750	10.50/20D	11.25/24	6-4⅝x5⅛	517	369	125-2300	5	2F	R	7.16-10.00
.....(16) HD165	175	215	40000	11800	10.50/24D	12.00/24¶	6-4⅝x5⅛	517	369	125-2300	5	2F	R	7.97-12.14
.....(16) HD175	175	215	45000	12475	12.00/24yD	13.50/24¶	6-4⅝x5⅛	517	369	125-2300	5	2F	R	7.97-12.14
.....(16) HC105	175	215	26000	8825	9.75/20D	10.50/22	6-4¼x4¾	404	286	97-2400	5	CD	R	7.35-10.75
.....(16) HC115	175	215	30000	9375	9.75/20D	10.50/24	6-4⅜x5⅛	462	328	111-2400	4	CD	R	7.40-10.82
.....(16) JC115	175	215	30000	9500	9.75/20D	10.50/24	6-4⅝x5⅛	517	369	125-2300	5	CD	R	6.11-10.82
.....(16) JC137	175	215	34000	9750	9.75/20D	10.50/24	6-4⅝x5⅛	517	369	125-2300	5	CD	R	6.11-10.82
.....(16) HC144	175	215	35000	10175	9.75/22D	11.25/24	6-4⅝x5¼	517	369	125-2300	5	CD	R	7.40-10.82
.....(16) JC145	175	215	36000	10125	9.75/22D	11.25/24	6-4⅝x5⅛	517	369	125-2300	5	CD	R	6.11-10.82
.....(16) HC145	175	215	36000	10375	9.75/22D	11.25/24	6-4⅝x5⅛	517	369	125-2300	5	CD	R	7.40-10.82
.....(16) HC147	175	215	36000	10600	9.75/22D	11.25/24	6-4⅝x5⅛	517	369	125-2300	5	CD	R	7.40-10.82
.....(16) HC156	175	215	40000	11050	10.50/24D	12.00/24¶	6-4⅝x5⅛	517	369	125-2300	5	CD	R	7.40-10.82
.....(16) HC165	175	215	40000	11275	10.50/24D	12.00/24¶	6-4⅝x5⅛	517	369	125-2300	5	CD	R	7.40-10.82
.....(16) HC175	175	215	45000	12600	11.25/24yD	12.75/24	6-4⅝x5⅛	517	369	125-2300	5	CD	R	7.31-10.68
.....(16) HC185	185	225	48000	13675	12.00/24yD	13.50/24‡‡	6-5x5¾	677	492	152-2200	4	CD	R	7.31-10.68
.....(16) HC200	185	225	50000	15100	12.75/24yD	13.50/24‡‡	6-5x5¾	677	492	152-2200	12	CD	R	7.31-10.68
.....(16) HC250	177	177	60000	16775	13.50/25¶D	13.50/24‡‡	6-5x5¾	677	492	152-2200	12	CD	R	7.31-10.68
Stewart.....49A	144	224	19500	5950	7.00/20D	9.00/20	6-4x4¼	318	210	86-3000	5	FS	R	6.83-7.80
.....58A	140	228	22000	7100	7.50/20D	10.00/20	6-4¼x4¾	404	300	105-2500	5	FS	R	7.16
.....59A	140	228	25000	7490	8.25/20D	11.00/20	6-4¼x4¾	404	300	105-2500	5	F2	R	8.50
.....38A	140	228	27000	8250	9.00/20D	11.00/20	6-4⅝x5⅛	517	369	110-2400	5	F2	R	7.37-8.64
Studebaker.....M5	113	.....	.....	1970	6.00/16	7.50/16	6-3x4	170	134	80-4000	3	SF	H	4.55-4.82
.....M15	120	152	.....	2680	6.00/17	7.50/17	6-3⅛x4⅜	226	176	94-3600	4	FF	H	5.14-6.66
.....M16	128	195	.....	3180	6.00/20	8.25/20	6-3⅛x4⅜	226	176	94-3600	4	FF	H	5.14-6.66
Truckstell														
.....(C) TRC-18-5	114	197	18500	5870	8.25/20D	9.00/20	6-3⅜x3¹¹⁄₁₆	235	192	93-3000	12	SF	H	6.83
.....(F) TRF-18-5E	114	197	18500	5870	8.25/20D	10.00/20	8-3⅛x3⅝	239	176	95-3600	12	SF	H	6.83
.....(F) TRF-18-5S	114	197	18500	5850	8.25/20D	10.00/20	6-3.3x4.4	266	180	90-3300	12	SF	H	6.83
...(C) TRC-18-5CO	114	197	18500	5870	8.25/20D	9.00/20	6-3⅜x3¹¹⁄₁₆	235	192	93-3000	12	SF	H	6.83
..(F) TRF-18-5ECO	114	197	18500	5870	8.25/20D	10.00/20	8-3⅛x3¾	239	176	95-3600	12	SF	H	6.83
..(F) TRF-18-5SCO	114	197	18500	5850	8.25/20D	10.00/20	6-3.3x4.4	266	180	90-3300	12	SF	H	6.83
(20) (C) TRC-35BM	134	160	.....	5300	7.50/20D	8.25/20D	6-3⅜x3¹¹⁄₁₆	235	192	93-3000	4	SF	H	5.64-8.22
(20) (C) TRC-35BMO	109	158	.....	5450	7.50/20D	8.25/20D	6-3⅜x3¹¹⁄₁₆	235	192	93-3000	4	SF	H	5.64-8.22
(20) (C, TRC-40BM	134	160	.....	5500	7.50/20D	9.00/20D	6-3⅜x3¹¹⁄₁₆	235	192	93-3000	4	SF	H	6.50-9.02
(20) (C) TRC-40BMO	109	158	.....	5650	7.50/20D	9.00/20D	6-3⅜x3¹¹⁄₁₆	235	192	93-3000	4	SF	H	6.50-9.02
Ward La Fr.....125	187	200	21000	8000	9.00/20D	9.75/20	6-4¼x4¾	404	305	112-2600	5	SF	R	5.25-7.8
.....131	204	215	26000	8500	9.75/20D	10.50/20	6-4¼x4¾	404	305	112-2600	5	2F	R	5.60-9.4
.....136	204	215	26000	8700	9.75/20D	10.50/20	6-4⅜x5⅛	462	332	112-2400	5	2F	R	5.60-9.4
.....156	156	218	36000	10000	10.50/20D	11.25/24	6-4⅜x5⅛	462	332	112-2400	5	2F	R	6.00-9.2
.....156S	156	218	40000	10500	10.50/20D	12.00/24	6-4⅝x5⅛	517	365	126-2400	5	2F	R	7.10-10.
.....201	156	218	40000	10000	10.50/20D	11.25/24	6-5½x5½	784	550	150-3000	..	2F	R	7.10-10.0
.....55RH	156	218	36000	10000	10.50/20D	11.25/24	6-4⅝x5⅛	517	365	126-2400	5	2F	R	6.00-9.20
.....(D) 127D	187	215	21000	8500	9.00/20D	9.75/20	6-4x5	377	270	100-2200	5	SF	R	5.25-7.80
.....(D) 138D	204	215	26000	10000	9.75/20D	10.50/20	6-4⅜x5¼	474	350	120-2000	5	2F	R	5.60-9.40
.....(D) 156D	156	218	36000	10400	10.50/20D	11.25/24	6-4⅜x5¼	474	350	120-2000	5	2F	R	6.00-9.20
.....(D) 176D	156	230	36000	10900	10.50/20D	11.25/24	6-4⅞x6	672	500	150-1800	8	2F	R	6.00-9.2
.....(D) 201D	156	218	40000	11500	10.50/20D	11.25/24	6-4⅞x6	672	500	150-1800	4	2F	R	7.1-10.00
.....(c.o.e.) H	132	Opt	23000	8800	9.00/20D	10.50/24	6-4¼x4¾	404	305	112-2600	5	SF	R	5.25-7.8
.....(c.o.e.) K	146	Opt	28000	9500	9.75/20D	10.50/24	6-4⅜x5⅛	462	332	112-2400	5	2F	R	5.6-9.4
.....(c.o.e.) L	146	Opt	36000	10000	10.50/20D	11.25/24	6-4⅝x5⅛	517	365	126-2400	5	2F	R	6.00-9.2
.....(c.o.e.) J	132	Opt	28000	9000	9.75/20D	10.50/20	6-4¼x4¾	404	305	112-2600	5	2F	R	5.60-9.40

MAKE AND MODEL	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear		ENGINE DETAILS				No. of Forward Speeds	REAR AXLE		
	Minimum Standard	Maximum Standard			Standard Front and Rear	Maximum Authorized Tire Size (Duals unless noted)	No. of Cylinders Bore and Stroke	Displacement	Torque lb. ft.	Maximum Brake H.P. at R.P.M. Given		Gear and Type	Drive and Torque	Gear Ratio Range in High
Oshkosh—Cont.														
.....W-300	149	205	22000	9100	10.00/20S	11.00/20	6-4¼x4½	383	290	105-2500	5	SF	H	7.8
.....W-304	149	205	23600	9200	10.00/20S	11.00/20	6-4¼x4¾	404	310	118-2500	5	SF	H	7.8
.....W-400	150	205	25000	10350	11.00/20S	12.00/20	6-4⅝x4¾	478	345	116-2200	5	2F	H	8.6
.....W-500	150	204	27000	10600	11.00/20S	12.00/20	6-4½x5¼	500	360	121-2200	5	2F	H	7.5-8.6
.....W-600	150	204	27000	11100	11.00/20D	12.00/20	6-4½x5¼	500	360	121-2200	10	2F	H	7.27-8.6
.....W-700	150	204	30000	11500	11.00/20D	12.00/20	6-4⅝x5¼	529	380	128-2200	10	2F	H	7.27-8.6
.....W-800	150	204	31500	12300	11.00/20D	12.00/20	6-4⅞x5¼	558	405	141-2200	10	2F	H	8.05-9.15
.....W-900	150	190	38000	14200	12.00/20D	14.00/20S	6-4⅞x6	672	500	150-1800	12	2F	H	8.05-9.15
.....BG3	168	190	39000	14200	14.00/20S	14.00/20S	6-5x6	707	505	161-2100	4	2F	H	4.7-6.8
.....GD	168	190	43000	14500	14.00/20S	14.00/20S	6-5¾x6	935	610	199-2000	4	2F	H	5.3-7.4
Walter....(c.f.) FN	126	150	20000	7500	10.00/20S	10.00/20	6-4¼x4¾	381	270	90-2200	6	2D	H	6.0-8.0
.....(c.f.) FM	126	150	24000	8500	11.00/20S	11.00/20	6-4⅜x5⅛	462	325	110-2200	6	2D	H	6.0-8.0
.....(c.f.) FKM	126	150	26000	9000	10.00/20D	11.00/20	6-4⅝x5⅛	517	365	125-2200	6	2D	H	6.0-8.0
.....(c.f.) FCK	126	138	30000	10500	10.00/24D	11.00/24	6-4⅝x5⅛	517	365	125-2200	6	2D	H	7.5-9.0
.....(c.f.) FC	138	162	32000	11000	10.00/24D	11.00/24	6-4⅝x5⅛	517	365	125-2200	6	2D	H	7.5-9.0
.....(c.f.) FB	138	162	32000	12000	11.00/24D	11.00/24	6-5x5¾	677	485	150-2100	6	2D	H	7.5-9.0
.....(c.f.) FBR	138	162	42000	13000	12.00/24D	13.00/24	6-5x5¾	677	485	150-2200	6	2D	H	7.5-9.0
.....(c.f.) FXB	138	162	32000	12000	11.00/24D	12.00/24	6-5¾x6	935	610	200-2000	6	2D	H	7.5-9.1
.....(c.f.) FXR	138	162	42000	13000	12.00/24D	13.00/24	6-5¾x6	935	610	200-2000	6	2D	H	7.5-9.1
Ward La Fr.....204	156	Opt	50000	13000	10.50/20D	12.00/24	6-4⅝x5⅛	517	365	126-2400	9	2F	S	**-9.20
.....108	Opt	Opt	15500	5500	7.00/20D	9.00/20	6-3¾x4¼	282	188	85-3200	5	SF	H	5.83-6.80
.....128	Opt	Opt	22500	7800	10.00/20D	11.00/20	6-4¼x4¾	404	305	112-2600	5	2F	H	5.00-7.27
.....158	Opt	Opt	35000	10000	11.00/20D	12.00/20	6-4⅝x5⅛	517	365	126-2400	...	2F	H	5.79-9.16

Six-Wheelers

Wheels Driven

Corbitt ▼														
(10).....35SB2	2F	Opt	Opt	35000	9100	9.00/20D	9.75/22	6-4⅝x4⅝	405	304	112-2600	5	SF	A	6.06-7.40
(10).....40SB2	2F	Opt	Opt	40000	10700	9.75/20D	10.50/22	6-4⅝x4¾	428	325	125-2400	5	SF	A	4.55-7.80
(10).....18SB4	4R	Opt	Opt	18000	5800	7.00/20D	7.50/20	6-3⅞x4⅜	244	170	83-3200	4	SF	A	6.26-8.05
(10).....18SB2	2F	Opt	Opt	18000	5300	7.00/20D	7.50/20	6-3⅞x4⅜	244	170	83-3200	4	SF	A	5.14-6.60
(10).....25SB2	2F	Opt	Opt	25000	7670	8.25/20D	9.00/20	6-3¾x4⅜	290	206	87-2800	5	SF	A	4.86-6.80
(10).....25SB4	4R	Opt	Opt	25000	9000	8.25/20D	9.00/20	6-3¾x4⅜	290	206	87-2800	5	SF	A	5.93-8.30
(10).....35SB4	4R	Opt	Opt	35000	10000	9.00/20D	9.75/22	6-4¼x4½	383	280	104-2400	5	SF	A	5.41-9.03
(10).....40SB4	4R	Opt	Opt	40000	11500	9.75/20D	10.50/22	6-4⅝x4¾	428	325	125-2400	5	2F	A	5.90-8.40
(10).....18SB6	6	Opt	Opt	18000	7300	7.00/20D	8.25/20	6-3⅞x4⅜	244	170	83-3200	8	SF	A	4.57-6.60
(10).....25SB6	6	Opt	Opt	25000	8200	8.25/20D	9.00/22	6-4x4⅜	330	238	103-3000	10	SF	A	4.86-6.80
(10).....40SD6	6	Opt	Opt	40000	11700	9.00/20D	9.75/22	6-4½x5¼	501	400	150-2200	10	2F	A	6.41-9.33
(10).....50SD6	6	Opt	Opt	50000	14600	9.75/20D	10.50/22	6-5¼x6	779	555	178-2100	10	2F	A	7.33-9.11
(10).....54SD6	6	Opt	Opt	54000	15400	9.75/22D	10.50/22	6-5¼x6	779	555	178-2100	8	2F	A	7.33-9.11
Dart.....1000	4R	161	268	24500	7540	32x6D	9.00/20	6-4x4¼	320	204	84-2800	5	2F	T	5.93-8.30
.....1500	4R	161	268	30000	10140	34x7D	9.75/20	6-4¼x4½	383	262	106-2800	5	2F	T	5.41-9.03
.....252	4R	152	268	33000	12794	34x7D	9.00/20	6-4¼x4½	383	262	106-2800	10	2F	T	5.90-8.44
.....352	4R	156	261	39000	15594	9.75/20D	10.50/24	6-4⅝x5¼	558	410	144-2200	12	2F	T	7.33-10.2
Diamond T														
...612SBD1000	4R	174	224	26000	28500	7.50/20D	8.25/20	6-3¾x4¼	282	214	86-2800	5	SF	R	Opt.
...614SBD1500	4R	175	225	32000	9500	8.25/20D	9.00/20	6-4x4¼	320	228	96-2800	5	SF	R	Opt.
...702SBD1500	4R	168	222	33000	11000	8.25/20D	9.00/20	6-4¼x4½	383	286	99-2600	5	SF	R	Opt.
....702SD3000	4R	168	222	36000	12500	8.25/20D	9.75/20	6-4¼x4½	383	286	99-2600	5	2F	R	Opt.
...806SBD1500	4R	168	222	36000	12000	9.00/20D	9.00/20	6-4¼x4¾	404	300	114-2400	5	SF	R	Opt.
....806SD3000	4R	168	222	40000	13000	9.00/20D	9.75/22	6-4¼x4¾	404	300	114-2400	5	2F	R	Opt.
....900SD3000	4R	168	222	40000	14000	9.00/20D	9.75/22	6-4⅝x5¼	529	365	136-2100	5	2F	R	Opt.
.....900SD454	4R	170	224	50000	15500	9.75/20D	10.50/24	6-4⅝x5¼	529	365	136-2100	5	2F	R	Opt.
.....(D) 910SD	454	170	224	50000	17000	9.75/20D	10.50/24	6-4⅞x6	672	500	150-1800	12	2F	R	Opt.
Federal....296X4	4R	162	215	32000	9200	8.25/20D	10.00/20	6-4x4¼	320	244	95-2800	5	WF	R	6.8-8.5
.....356X4	4R	167	220	36000	10700	9.00/20D	10.00/20	6-4¼x4½	383	285	114-2800	5	WF	R	6.8-8.5
.....556X4	4R	167	220	40000	11200	9.00/20D	11.00/20	6-4¼x4¾	404	307	125-2800	5	WF	R	6.8-8.5

.....(c.o.e.) LD	146	Opt	36000	11000	10.50/20D	11.25/24	6-4⅞x6	672	500	150-1800	5	2F	R	6.00-9.20
.....(c.o.e.) MD	146	Opt	40000	12500	10.50/20D	11.25/24	6-4⅞x6	672	500	150-1800	5	2F	R	7.10-10.0
Warford....(C) DC-2	163	200	26500	6200	32x6D	8.25/20	8-3 1/16x3¾	221	156	90-3800	8	SF	A	6.67
.....(C) WC-2	163	204	26500	6100	32x6D	8.25/20	6-3 1/16x3¾	217	174	90-3200	8	HY	A	6.17
.....(C) DC-1	163	200	30000	6400	7.50/20D	8.25/20	8-3 1/16x3¾	239	176	100-3600	8	SF	A	6.67
.....(C) WC-1	163	204	30000	6300	7.50/20D	8.25/20	6-3 1/16x3 11/16	235	192	93-3200	8	HY	A	6.17
Willys.....(18) SC442	104	104	3700	1285	5.50/16S	6.00/16S	4-3½x4⅜	134	106	61-3800	3	S	H	4.82
....(18) SCOF442P	104	104	3900	1285	6.00/16S	(18)	4-3½x4⅜	134	106	61-3800	3	S	H	4.82

Four-Wheel-Drive

Corbitt.....(10) F-12	Opt	Opt	12500	4460	6.50/20D	8.25/20	6-3 1/16x4⅜	244	170	83-3200	8	SF	H	5.14-6.6
.....(10) F-14	Opt	Opt	14500	5060	7.50/20D	8.25/20	6-3⅝x4⅜	271	191	85-2900	8	SF	H	5.83-6.8
.....(10) F-18	Opt	Opt	18500	6900	8.25/20D	9.00/20	6-4⅛x4⅝	371	280	100-2650	10	2F	H	6.00-8.21
.....(10) F-19	Opt	Opt	19500	6500	8.25/20D	9.00/22	6-4x4⅜	330	238	103-3000	10	2F	H	6.62-8.21
.....(10) F-23	Opt	Opt	23500	9000	9.00/20D	9.75/22	6-4⅛x4¾	381	276	106-2600	10	2F	H	5.61-8.40
.....(10) F-27	Opt	Opt	27500	10000	9.75/22D	10.50/22	6-4⅜x4¾	428	325	125-2400	10	2F	H	6.36-8.59
.....(10) F-35	Opt	Opt	35500	12500	10.50/20D	11.25/24	6-4½x5¼	501	400	150-2200	10	2F	H	6.39-9.16
F. W. D.....HS	132	156	15000	z6600	7.00/20D	8.25/20	6-3¾x4¼	282	189	84-2800	5	SF	H	7.10-7.85
.....HA	132	156	17000	z6800	7.50/20D	9.00/20	6-4x4¼	320	222	95-2800	5	SF	H	7.30-8.06
.....HR	144	154	20000	z7800	7.50/20D	10.00/20	6-4⅛x4¾	381	270	98-2500	5	SF	H	7.30-8.06
.....CU	150	182	22000	z9500	10.00/20S	Opt	6-4¼x4¾	404	288	106-2500	5	BF	H	6.72-8.84
.....CUA	150	182	22000	z9350	10.00/20S	Opt	6-4¼x4¾	404	288	106-2500	5	BF	H	6.72-8.84
.....SU	150	182	25000	z0150	12.00/20S	Opt	6-4⅜x5⅛	462	330	112-2400	5	BF	H	6.72-8.84
.....SUA	150	182	25000	z0050	12.00/20S	Opt	6-4⅜x5⅛	462	330	112-2400	5	BF	H	6.72-8.84
.....YU	150	182	26000	z0300	11.00/20D	Opt	6-4⅝x5⅛	517	369	126-2300	5	BF	H	6.72-8.84
.....MJ6	150	180	30000	z3250	11.00/20D	Opt	6-4⅝x5⅛	517	369	126-2300	10	2F	H	6.65-8.67
.....M6	150	180	32000	z3800	11.00/20D	Opt	6-4½x5½	525	410	138-2300	10	2F	H	6.42-8.47
.....M7	150	180	38000	z4000	13.00/20S	Opt	6-5¼x6	779	580	162-2000	10	2F	H	6.42-8.47
.....M10	150	180	42000	z4250	14.00/20S	Opt	6-5¾x6	935	610	198-2000	10	2F	H	7.16-9.23
.....(T) T28	132	156	(x)	z6600	7.00/20D	8.25/20	6-3¾x4¼	282	189	84-2800	5	SF	H	6.48-6.78
.....(T) T30	132	156	(x)	z6800	7.50/20D	9.00/20	6-4x4¼	320	222	95-2800	5	SF	H	6.66-9.04
.....(T) T32	132	154	(x)	z7800	7.50/20D	10.00/20	6-4⅛x4¾	381	270	98-2500	5	SF	H	6.66-9.04
Kenworth.....539	134	146	24000	10180	9.00/20D	10.00/24	6-4¼x4¾	404	300	112-2600	5	2F	H	5.77-8.40
.....540	134	146	27700	10310	10.00/20D	10.00/24	6-4¼x4¾	404	300	112-2600	5	2F	H	6.85-9.41
.....541	134	146	27700	10650	10.00/20D	10.00/24	6-4½x5½	525	385	135-2200	5	2F	H	6.85-9.41
.....542	134	146	35000	10935	10.50/20D	11.00/24	6-4½x5½	525	385	135-2200	5	2F	H	6.85-8.50
Marmon-Herr.														
.....(19) (F) LD6-4	114	114	4500	2719	7.50/15S	7.50/15S	8-3 1/16x3¾	221	150	90-3800	4	S¾	U	**-4.55
.....(19) (F) OT5-4	122	122	6800	3972	7.00/18S	7.50/18S	8-3 1/16x3¾	221	150	90-3800	4	SF	H	*-4.86
....(19) (F) MM5-4	134	134	13200	4361	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	H	**-6.67
....(19) (F) MM6-4	158	158	13200	4441	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	H	**-6.67
(F) (c.o.e.) MM5-4	134	134	13200	4531	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	H	**-6.67
(F) (c.o.e.) MM6-4	158	158	13200	4611	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	H	**-6.67
.....DSD100-4	143	Opt	13200	5040	6.50/20D	7.50/20	6-3⅝x4¼	263	182	78-2800	4	SF	H	*-6.8
.....DSD200-4	143	Opt	13200	5500	7.00/20D	7.50/20	6-3¾x4¼	282	196	84-2800	5	SF	H	*-6.8
.....DSD300-4	143	Opt	15900	5764	7.50/20D	8.25/20	6-4x4¼	320	224	95-2800	5	SF	H	*-6.8
.....DSD400-4	158	Opt	19500	7782	8.25/20D	9.00/20	6-4½x4½	383	260	106-2800	5	SF	H	*-6.83
.....DSD500-4	158	Opt	23400	8680	9.00/20D	9.75/20	6-4½x4¾	404	293	118-2800	5	SF	H	*-7.8
.....DSD550-4	158	Opt	23400	8940	9.00/20D	9.75/20	6-4½x5¼	501	360	121-2200	5	SF	H	*-7.8
.....DSD550DR-4	158	Opt	23400	9950	9.00/20D	9.75/20	6-4½x5¼	501	360	121-2200	5	2F	H	*-7.52
.....DSD600-4	161	Opt	23400	9700	9.00/20D	9.75/20	6-4½x5¼	501	360	121-2200	5	2F	H	*-7.21
.....DSD700-4	161	Opt	25200	10300	9.75/20D	9.75/22	6-4½x5¼	501	360	121-2200	5	2F	H	*-7.52
.....DSD800-4	161	Opt	30000	10850	10.50/20D	10.50/22	6-4⅝x5¼	529	390	131-2200	5	2F	H	*-8.23
.....DSD900-4	195	Opt	30000	13500	10.50/20D	10.50/24	6-5½x6	855	555	180-2200	4	2F	H	*-8.23
.....DSD1000-4	195	Opt	40000	15650	10.50/24D	12.75/20	6-5¾x6	935	610	198-2200	4	2F	H	*-8.88
....(D) DDSD200-4	143	Opt	13200	5675	7.50/20D	7.50/20	6-3½x4½	260	178	79-2600	5	SF	H	*-5.83
....(D) DDSD300-4	143	Opt	15900	6155	7.50/20D	8.25/20	6-3¾x4½	298	208	83-2600	5	SF	H	*-5.83
...DDDSD550DR-4	158	Opt	23400	10560	9.00/20D	9.75/20	6-4⅜x5¼	474	350	124-2200	5	2F	H	*-6.65
....(D) DDSD700-4	161	Opt	25200	10910	9.75/20D	9.75/22	6-4⅜x5¼	474	350	124-2200	5	2F	H	*-6.65
....(D) DDSD800-4	161	Opt	30000	11435	10.50/20D	10.50/22	6-4⅜x5¼	474	350	124-2200	5	2F	H	*-7.0
....(D) DDSD900-4	198	Opt	30000	14200	10.50/20D	10.50/22	6-5x6	707	530	176-1800	4	2F	H	*-7.22
...(D) DDSD1000-4	198	Opt	40000	16375	10.50/24D	10.50/24	6-5x6	707	530	176-1800	4	2F	H	*-7.95
Oshkosh.....W-100	130	160	15000	6300	7.00/20D	8.25/20	6-3⅝x4¼	282	215	87-3000	5	SF	H	6.8
.....W-200	130	160	18000	6600	7.50/20D	8.25/20	6-4x4¼	320	230	96-2800	5	SF	H	5.71

(Continued at top of facing page.)

.....626X4 4R	168	221	55000	14000	10.00/20D	12.00/20	6-4½x5¼	501	400	150-2300	5	WF	R	6.8-8.2
..(c.o.e.) 896X4 4R	127	180	32000	9100	8.25/20D	10.00/20	6-4x4¼	320	244	95-2800	5	WF	R	6.8-8.5
..(c.o.e.) 906X4 4R	140	185	36000	10600	9.00/20D	10.00/20	6-4¼x4½	383	285	114-2800	5	WF	R	6.8-8.5
..(c.o.e.) 946X4 4R	140	185	40000	11100	9.00/20D	11.00/20	6-4¼x4¾	404	307	125-2800	5	WF	R	6.8-8.5
F. W. D.....CU6X6	184	Opt	40000	14700	11.00/20D	Opt	6-4¼x4¾	404	288	106-2500	5	2F	H	**-10.0
.....MJ6X6	184	204	45000	18000	11.00/20D	Opt	6-4⅝x5⅛	517	369	126-2300	10	2F	H	**-8.6
.....M6X6	204	Opt	55000	19000	14.00/20S	Opt	6-5¼x6	779	580	162-2000	10	2F	H	**-10.0
Hug.....99 4R	175	175	64700	18100	12.00/20D	12.00/20	6-5x5¾	677	492	144-1800	8	2F	T	7.33-10.2
.....(D) 99 4R	175	175	64700	18600	12.00/20D	12.00/20	6-4⅞x6	672	500	150-1800	8	2F	T	7.33-10.2
.....99S 4R	175	175	75000	20000	12.00/20D	12.00/20	6-5x5¾	677	480	144-1800	8	2F	T	7.33-10.2
.....(D) 99S 4R	175	175	75000	20545	12.00/20D	12.00/20	6-4⅞x6	672	500	150-1800	8	2F	T	7.33-10.2
International (11)														
.....K-6F4R	151	194	22000	6640	7.00/20D	8.25/20	6-3 1/16x4½	251	200	100-3200	4	SF	HT	5.28-6.66
.....K-6T2F	176	194	22000	6275	7.00/20D	8.25/20	6-3 1/16x4½	251	200	100-3200	4	SF	HT	5.62-7.16
.....(c) K-8F4R	161	215	27000	8360	7.50/20D	9.00/20	6-3 1/16x4½	318	241	100-2800	5	SF	HT	5.62-7.16
....(a,b,c) K-8T2F	161	215	27000	8105	7.50/20D	9.00/20	6-3 1/16x4½	318	241	100-2800	5	SF	HT	5.62-7.16
.....(c) K-11F4R	161	215	37000	10815	9.00/20D	10.00/20	6-4¼x5	401	308	114-2600	5	SF	HT	4.55-7.16
....(a,c) KR-11T2F	161	215	37000	10340	9.00/20D	10.00/20	6-4¼x5	401	308	114-2600	5	2SF	HT	5.02-9.03
Ken-.....(D) 510 2F	221	247	39000	12630	9.00/22D	10.00/22	6-4⅞x6	672	500	150-1800	4	CF	R	6.04-10.5
worth....(D) 522 2F	214	239	46000	12150	9.00/20D	11.00/22	6-4⅞x6	672	500	150-1800	4	2F	H	6.02-9.2
.....(D) 523 4R	214	239	42000	13700	9.00/20D	11.00/24	6-4⅞x6	672	500	150-1800	4	WF	R	5.40-10.2
.....(D) 524 4R	214	239	54000	14700	10.00/20D	11.00/24	6-4⅞x6	672	500	150-1800	4	WF	R	6.0-11.7
.....528 4R	211	236	43000	12400	10.00/20D	11.00/24	6-4½x5½	525	385	135-2200	5	WF	R	5.40-10.2
Marmon-Herr.														
.....DSD200-6	167	Opt	19500	8065	7.00/20D	7.00/20	6-3¾x4¼	282	196	84-2800	5	2F	R	*-7.36
.....DSD300-6	167	Opt	25500	9025	7.50/20D	8.25/20	6-4x4¼	320	224	95-2800	5	2F	R	*-7.66
.....DSD400-6	158	Opt	26500	9600	8.25/20D	9.00/20	6-4¼x4½	383	260	106-2800	5	2F	R	*-9.33
.....DSD500-6	158	Opt	32500	10400	8.25/22D	9.00/20	6-4¼x4¾	404	293	118-2800	5	2F	R	*-9.33
.....DSD600-6	173	Opt	32500	12200	9.00/20D	9.00/20	6-4½x5¼	501	330	110-2200	5	2F	R	*-8.43
.....DSD800-6	173	Opt	42000	14475	9.75/20D	9.75/22	6-4⅝x5¼	529	390	131-2200	5	2F	R	*-8.14
.....DSD900-6	192	Opt	42000	17590	9.75/20D	9.75/22	6-5½x6	855	555	180-2200	4	2F	R	*-9.11
.....DSD1000-6	198	Opt	52000	19200	10.50/20D	10.50/24	6-5¾x6	935	610	198-2200	4	2F	R	*-9.11
....(D) DDSD200-6	167	Opt	19500	8465	7.00/20D	7.00/20	6-3½x4½	260	178	79-2600	5	2F	R	*-6.66
....(D) DDSD300-6	167	Opt	25500	9425	7.50/20D	8.25/20	6-3¾x4½	298	208	83-2600	5	2F	R	*-6.41
....(D) DDSD600-6	173	Opt	32500	12800	9.00/20D	9.00/20	6-4⅜x5¼	474	350	121-2200	5	2F	R	*-7.66
....(D) DDSD800-6	173	Opt	42000	15060	9.75/20D	9.75/22	6-4⅜x5¼	474	350	124-2200	5	2F	R	*-8.14
....(D) DDSD900-6	192	Opt	42000	18325	9.75/20D	9.75/22	6-5x6	707	530	176-1800	4	2F	R	*-8.14
...(D) DDSD1000-6	198	Opt	52000	19950	10.50/20D	10.50/24	6-5x6	707	530	176-1800	4	2F	R	*-8.14
....(F) (19) MM5-6	156	156	22000	5875	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	R	**-6.67
....(F) (19) MM6-6	180	180	22000	5997	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	R	**-6.67
.(F) (c.o.e.) MM5-6	156	156	22000	6045	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	R	**-6.67
.(F) (c.o.e.) MM6-6	180	180	22000	6167	6.00/20D	7.50/20	8-3 1/16x3¾	239	176	100-3600	4	SF	R	**-6.67
Sterling														
...(16) HBT128 2F	181	227	32000	10625	9.00/20D	9.75/20	6-4¼x4¾	404	286	99-2400	5	SF	L	5.57-7.80
(15-16) HWS128 4R	181	227	32000	10775	9.00/20D	9.75/20	6-4¼x4¾	404	286	99-2400	5	WF	L	6.20-10.40
(15-16) JWS160 4R	201	241	40000	12775	9.75/20D	10.50/20	6-4⅝x5½	517	368	125-2300	5	WF	L	6.00-10.67
(15-16)HWS235S4R	201	241	50000	13575	10.50/20D	10.50/24	6-4⅝x5½	517	368	125-2300	5	WF	L	6.00-10.25
...(16) HCS235 4R	211	251	52000	15250	9.75/22D	10.50/24	6-4⅝x5½	517	369	125-2300	15	CD	R	10.73-13.2
...(16) HCS265 4R	211	251	60000	16400	10.50/20D	11.25/24	6-5x5¾	677	492	152-2200	12	CD	R	10.76-13.5
...(16) HCS297 4R	211	251	70000	18300	10.50/24■S	11.25/24▼S	6-5x5¾	677	492	152-2200	12	CD	R	10.76-15.3
...(16) HCS330 4R	180	180	80000	20100	10.50/24◆S	11.25/24^S	6-5x5¾	677	492	152-2200	12	CD	R	10.76-15.3
Truckstell														
(C) TRC-2X400 2F	157	218	26000	6100	8.25/20zD	8.25/20	6-3 1/16x3 11/16	235	192	93-3000	8	SFd	H	6.5-9.02
(C) TRC-2X400CO 2F	154	204	27000	6250	8.25/20zD	8.25/20	6-3 1/16x3 11/16	235	192	93-3000	8	SFd	H	6.5-9.02
(C) TRC-4XD28C 4R	141	212	26000	6580	7.50/20zD	8.25/20	6-3 1/16x3 11/16	235	192	93-3000	8	SFd	H	**-6.4
(C) TRC-4XD27CO 4R	116	186	27000	6690	7.50/20zD	8.25/20	6-3 1/16x3 11/16	235	192	93-3000	8	SFd	H	**-6.4
(C) TRC-4XD30E 4R	117	212	30000	7850	8.25/20zD	8.25/20	6-3 1/16x3 11/16	235	192	93-3000	16	SFd	H	7.67
(F) TRF-2X250 2F	155	252	22000	5900	7.50/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	8	SFd	H	5.83-8.57
(F) TRF-2X400 2F	156	253	26000	6000	8.25/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	8	SFd	H	6.5-9.02
(F) TRF-2X250CO 2F	122	241	23000	5950	7.50/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	8	SFd	H	5.83-8.57
(F) TRF-2X400CO 2F	123	242	27000	6050	8.25/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	8	SFd	H	6.5-9.02
(F) TRF-4XD26F 4R	143	210	26000	6600	7.50/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	8	SFd	H	6.88-7.87
(F) TRF-4XD29EO 4R	143	210	29000	6880	8.25/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	...	SFd	H	6.88-9.56
(F) TRF-4XD27F 4R	117	180	27000	6720	7.50/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	8	SFd	H	6.88-7.87
(F) TRF-4XD30EO 4R	117	180	30000	7880	8.25/20zD	8.25/20	8-3 1/16x3¾	239	176	95-3600	...	SFd	H	6.88-9.56
(C) TRC-4XD31EO...	117	184	31000	7950	7.50/20D	8.25/20	6-3 1/16x3 11/16	235	192	93-3000	16	SFd	H	7.67
(F) TRF-4XD30E.....	143	210	30000	7850	7.50/20D	8.25/20	8-3 1/16x3¾	239	176	95-3600	16	SFd	H	7.67
(F) TRF-4XD31EO...	117	180	31000	7950	7.50/20D	8.25/20	8-3 1/16x3¾	239	176	95-3600	16	SFd	H	7.67

(Concluded)

AMERICAN

Line Number	BUS MAKE AND MODEL	GENERAL: Passenger Rating	GENERAL: Type (City Service, Parlor, etc.)	GENERAL: Standard Wheelbase (In.)	GENERAL: Overall Length (In.)—Bumper to bumper	GENERAL: Inside Length (In.)—Passenger Compartment	GENERAL: Tread (In.)—Front and Rear	GENERAL: Complete Vehicle Weight—Dry (Lb.)	GENERAL: Standard Tire Size (In.)—Front and Rear	ENGINE: Make and Model	ENGINE: Cycle and Fuel	ENGINE: Location	ENGINE: Number of Cylinders—Bore and Stroke (In.)	ENGINE: Displacement (Cu. In.)	ENGINE: Rated Horsepower (S.A.E.)	ENGINE: Maximum Brake Hp. at Governed R.P.M.	ENGINE: Maximum Net Torque (Lb. Ft.) at Specified R.P.M.	ENGINE: Compression Ratio—to 1	ENGINE: Compression Pressure—(Lb.) at Specified R.P.M.	ENGINE: Valve Arrangement	Oiling System: Pressure to—
1	A. C. F. (4) 26S	26-28	CS	156½	289 7/8	273	82-72	10420	9.00/18	HS 95	4-G	UFA	6-4x5	377	38.4	106-2600	268-1000	5.40	108-1000	I	acdef(1)
2	A. C. F. 29P	29-33	Par	220	358 1/4	327½	81 1/4-69 3/4	12900	9.00/18	HS 130	4-G	UFA	6-4 1/4x5	425	43.3	124-2400	296-1000	5.50	116-1000	I	acdef(1)
3	A. C. F. 31S	31	CS	172½	328 5/8	313	81½-69 3/4	12500	9.00/18	HS 130	4-G	UFA	6-4 1/4x5	425	43.3	124-2400	296-1000	5.50	116-1000	I	acdef(1)
4	A. C. F. 36S	36	CS	188	366	342	81 1/4-70 1/4	13700	10.00/20	HS 135	4-G	UFA	6-4½x5	477	48.6	139-2400	340-1000	5.50	116-1000	I	acdef(1)
5	A. C. F. 37PB	37	Par	255½	396	378 5/8	80 1/4-72	18370	10.50/22	HS 180	4-G	UFA	6-5x6	707	60.0	194-2200	509-1400	5.40	116-1000	I	acdef(1)
6	A. C. F. 37BPS	37	Par	255	395 1/4	364½	79 5/8-71	17325	11.00/20	HS 162	4-G	UFA	6-4 5/8x6	605	51.2	177-2300	437-1490	5.44	116-1000	I	acdef(1)
7	A. C. F. 41S	41	CS	215½	396		79 3/4-70 5/8	15500	10.00/20	HS 162	4-G	UFA	6-4 5/8x6	605	51.2	165-2200	428-1400	5.44	116-1000	I	acdef(1)
8	A. C. F. 45S	45	CS	239½	418½	394	80-71	18760	11.00/20	HS 180	4-G	UFA	6-5x6	707	60.0	194-2200	508-1400	5.40	116-1000	I	acdef(1)
9	Aerocoach (5) PB20	20	Par	201 3/8	336	208	75-65	7400	7.00/20	Ford 09B	4-G	R	8-3 1/16x3 3/4	239	32.5	95-3600	170-2200	6.15		L	acd
10	Aerocoach PB25D	25	Par	201 3/8	336	261	75-65	8000	7.00/20	Ford 09B	4-G	R	8-3 1/16x3 3/4	239	32.5	95-3600	170-2200	6.15	102-200	L	acd
11	Aerocoach EFI	22-25	Par	201 3/8	336	261	75-65	8900	7.00/20	Ford 09B	4-G	R	8-3 1/16x3 3/4	239	32.5	95-3600	170-2200	6.15		L	acd
12	Aerocoach EFT	25-29	CS	201 3/8	336	261	75-65	8900	7.00/20	Ford 09B	4-G	R	8-3 1/16x3 3/4	239	32.5	95-3600	170-2200	6.15		L	acd
13	Aerocoach P29	29-33	Par	192	358	352	78-71	12400	9.00/20	Int 401	4-G	R	6-4 1/4x5	401	40.8	114-2500	303-800	5.70	94-160	I	abcdfgh
14	Aerocoach P33	33-37	Par	233	396	390	78-71	13400	9.00/20	Int 450	4-G	R	6-4 3/8x5	451	45.9	126-2500	332-750	5.70	94-160	I	abcdfgh
15	Beck (6) Steeliner	24-29	C-P	190	322	262	75-66 1/2		7.50/20	Che 4-G		FI	6-3 5/16x3 1/2	235	30.4	93-3100	192-††	6.50		I	acdf
16	Beck Mainliner-185	29	Par	185	364	289	78-69 3/4		**	Int. FBC401A	4-G	R	6-4 1/4x5	401	40.8	114-2500	303-800	5.20	92-160	I	abcdh
17	Beck Luxury Liner-220	33	Par	220	396	323	81 3/4-69 3/4		‡	Int. FBC450A	4-G	R	6-4 3/8x5	451	45.9	121-2400	335-800	5.20	89-160	I	abcdh
18	Beck Mainliner-220	33	Par	220	396	320	81 3/4-69 3/4		‡	Int. FBC450A	4-G	R	6-4 3/8x5	451	45.9	121-2400	335-800	5.20	89-160	I	abcdh
19	Flxible (7) 18CF42	18	Par	187 5/8	314 3/4	252½	62 1/16-66	8140	7.50/20	Che 216	4-G	FI	6-3 1/2x3 1/4	216				6.50	112-Cr.	I	acdf
20	Flxible-Clipper 21CR42	21	Par	182	359½	248	79-69 3/4	10700	7.50/20	Che 235	4-G	R	6-3 7/8x3 1/16	235				6.61	112-Cr.	I	acdf
21	Flxible-Clipper 25CR42	25	Par	182	359½	248	79-69 3/4	11760	7.50/20	Che 235	4-G	R	6-3 7/8x3 1/16	235				6.61	112-Cr.	I	acdf
22	Flxible-Clipper 25BR42	25	Par	182	359½	248	79-69 3/4	12600	8.25/20	Bui FB320	4-G	R	8-3 7/16x4 1/8	320				7.00	115-Cr.	I	acdf
23	Flxible-Clipper 29BR42	29	Par	218	395 1/2	284	79-69 3/4	13680	8.25/20	Bui FB320	4-G	R	8-3 7/16x4 1/8	320				7.00	115-Cr.	I	acdf
24	Ford (8) 29B	27	CS	148½	309	270 3/4	82 1/16-83	10072	‡	Ford V8	4-G	R	8-3 1/16x3 3/4	239	32.5	95-3000	176-1700	6.40		L	acd
25	Mack (9) KB	27-28	CS	158	323		83 11/16-73 11/16		8.25/20	Mack EN330	4-G	R	6-4x4 3/8	330	38.4	100-2750	244-1000	6.10	141-1000	L	acdh
26	Mack RB	27-28	CS	158	323		83 11/16-73 11/16		8.25/20	Mack EN354	4-G	R	6-3 7/8x5	354	36.0	116-2700	263-1200	6.10	130-1000	L	acdh
27	Mack RC	31-32	CS	188	353		83 11/16-73 11/16		8.25/20	Mack EN354	4-G	R	6-3 7/8x5	354	36.0	116-2700	263-1200	6.10	130-1000	L	acdh
28	Mack LC	31-32	CS	188	353½		82 1/4-73½		9.00/20	Mack EN510	4-G	R	6-4 1/16x5½	510	47.3	149-2400	395-1200	6.07	144-1000	I	acdefh
29	Mack LD	35-36	CS	218	383½		82 1/4-73½		9.00/20	Mack EN510	4-G	R	6-4 1/16x5½	510	47.3	149-2400	395-1200	6.07	144-1000	I	acdefh
30	Mack CM	40-41	CS	232	396		82-72 5/8		10.00/20	Mac EP	4-G	R	6-4 3/4x5 3/4	611	54.1	180-2100	509-1200	6.15	116-800	I	acdefh
31	Mack CM	40-41	CS	232	396		82-71 3/4		11.00/20	Mack ED	4-D	R	6-4 3/4x5 3/4	519	45.9	131-2000	382-1300	14.5	430-1000	I	acdefh
32	Reo (10) 38T	25	CS	142	305	257	32½-68 1/4	10634	6.50/20	Reo GC245	4-G	R	6-3 1/2x4 1/4	245	29.4	89-3100	191-1000	6.20	125-1000	L	abcdg
33	Reo 56T	27	CS	160	323	275	82½-68 1/4	11126	7.00/20	Reo GC288	4-G	R	6-3 1/2x5	238	29.4	94-3000	221-1200	6.20	125-1000	L	abcdg
34	Reo 92T	34	CS	196	359	311	81 1/4-69 3/4	12280	8.25/20	Reo GC288	4-G	R	6-3 1/2x5	238	29.4	94-3000	221-1200	6.20	125-1000	L	abcdg
35	Twin Coach (11) 23G	23	CS	179 1/2	282 1/4		82 3/4-73 1/4	10750	8.25/18	Her TC-320	4-G	R	6-4x4 1/4	320	38.4	91-2400	243-800	5.90	135-1000	L	abcdg
36	Twin Coach 27GS	27	CS	210	312 1/16		82 3/4-73 1/4	11800	8.25/20	Her TC-320	4-G	R	6-4x4 1/4	320	38.4	91-2400	243-800	5.90	135-1000	L	abcdg
37	Twin Coach 27G	27	CS	210	312 1/16		82 3/4-73 1/4	12100	8.25/20	Her TC-383	4-G	R	6-4 1/4x4 1/2	383	43.3	111-2400	288-1100	6.00	135-1000	L	abcdg
38	Twin Coach 30GS	30	CS	235 1/2	338 1/16		82 3/4-73 1/4	12300	‡‡	Her TC-393	4-G	R	6-4 1/4x4 1/2	393	43.3	111-2400	288-1100	6.00	135-1000	L	abcdg
39	Twin Coach 30G	30	CS	235 1/2	338 1/16		82 1/2-73 1/4	12650	‡‡	Her TC-404	4-G	R	6-4 1/4x4 3/4	404	43.3	118-2400	307-1100	6.12	135-1000	L	abcdg
40	Twin Coach 31G	31	CS	179 1/2	335		82 3/4-72 3/4	13750	8.25/20	Her TC-404	4-G	R	6-4 1/4x4 3/4	404	43.3	118-2400	307-1100	6.12	135-1000	L	abcdg
41	Twin Coach 35G	35	CS	207 1/2	367		82 3/4-72 3/4	16100	10.00/20	Her TC-558	4-G	R	6-4 3/4x5 1/4	558	54.2	154-2400	430-1000	6.00	140-1000	L	abcdg
42	Twin Coach 35GDE	35	CS	207 1/2	367		82 3/4-72 3/4	18400	10.00/20	Her.TC-529D	4-D	R	6-4 5/8x5 1/4	529	51.3	140-2000	397-1200	14.5		I	abcdg
43	Twin Coach 41G	41	CS	239 1/2	395		82 3/4-72 3/4	16750	10.00/20	Her TC-558	4-G	R	6-4 3/4x5 1/4	558	54.2	154-2400	430-1000	6.00	140-1000	L	abcdg
44	Twin Coach 41GDE	41	CS	239 1/2	395		82 3/4-72 3/4	19050	10.00/20	Her.TC-529D	4-D	R	6-4 5/8x5 1/4	529	51.3	140-2000	397-1200	14.5		I	abcdg
45	Twin Coach 44GDE	44	CS	254 1/2	419 7/16		78 1/2-73	20000	11.00/20	Her.TC-529D	4-D	R	6-4 5/8x5 1/4	529	51.3	140-2000	397-1200	14.5		I	abcdg
46	White (12) 782	31	CS	168	336 13/16		82 5/8-70 3/4	12265	9.00/20	Whi 140TA	4-G	UFA	6-3 7/8x5 1/8	362	36.0	125-2800	285-1200	6.28		L	abcdegh
47	White 782-1	33	CS-S	168	338 13/16		82 5/8-70 3/4	13000	9.00/20	Whi 140TA	4-G	UFA	6-3 7/8x5 1/8	362	36.0	125-2800	285-1200	6.28		L	abcdegh
48	White 7786	33	Par-S	191	372 1/16		82 1/2-71 3/4	16500	10.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
49	White 786	36	CS-S	191	372 1/16		82 1/2-71 3/4	14875	10.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
50	White 786-1	37	S	191	372 1/16		82 1/2-71 3/4	15500	10.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
51	White 7788	37	Par-S	214	395 1/16		82 1/2-71 3/4	17500	11.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
52	White 788	40	CS-S	214	395 1/16		82 1/2-71 3/4	16400	11.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
53	White 788-1	41	S	214	395 1/16		82 1/2-71 3/4	16500	11.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
54	White 7798	41	Par-S	238	419 1/16		82 1/2-71 3/4	18250	11.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
55	White 798	45	CS-S	238	419 1/16		82 1/2-71 3/4	17410	11.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
56	White 798-1	45	S	238	372 1/16		82 1/2-71 3/4	17500	11.00/20	Whi 681	4-G	UFA	12-4 1/4x4 1/4	681	81.7	209-2600	500-1200	6.10		L	abcdegh
57	Yellow Coach (13) TG-21	21	CS	160	282½	250½	69 1/8-65	6820	7.50/18	Che 235	4-G	FH	6-3 7/16x3 1/2	235	30.4	83-3000	182-1000	6.60		I	acdf
58	Yellow Coach TG-24	24	CS	146	282½	252½	72-65	7580	7.00/20	Che 235	4-G	R	6-3 7/8x3 1/16	235	30.4	83-3000	182-1000	6.60		I	acdf
59	Yellow Coach PG-25	25	Par	191	361 1/16	268	78 1/8-70½	11180	8.25/20	GMC 308	4-G	R	6-3 1/2x4 1/2	308	34.9	110-2800	244-1000	6.00	118-117	I	abcdf
60	Yellow Coach TG-27	27	CS	145	296	252½	82 7/8-77	9290	7.50/20	GMC 270	4-G	R	6-3 1/2x4	270	34.3	95-3000	216-1000	6.75		I	abcdf
61	Yellow Coach TD-27	27	CS	145	297 5/8	252½	82 7/8-77	10850	7.50/20	GM(2) 3-71	2-D	R	3-4 1/4x5	213	21.7	83-2000	265-1000	16.0	400-350	I†	abcdf
62	Yellow Coach PG-29	29	Par	218	394 1/16	295	80-73	12670	9.00/18	GMC 426	4-G	R	6-4 1/4x5	426	43.3	145-2600	340-1000	6.00	102-117	I	abcdf
63	Yellow Coach PD-29	29	Par	218	396	296	80-73	13530	9.00/18	GM(2) 4-71	2-D	R	4-4 1/4x5	284	28.9	110-2000	350-1000	16.0	400-350	I†	abcdf
64	Yellow Coach TG-32	32	CS	181½	338	310	81 5/8-71½	13700	9.00/20	GMC 426	4-G	R	6-4 1/4x5	426	43.3	145-2600	340-1000	6.00	102-117	I	abcdf
65	Yellow Coach TD-32	32	CS	181½	338	310	81 5/8-71½	14350	9.00/20	GM(2) 4-71	2-D	R	4-4 1/4x5	284	28.9	110-2000	350-1000	16.0	400-350	I†	abcdf
66	Yellow Coach TG-36	36	CS	210½	367	339	81 5/8-72½	14290	9.00/20	GMC 451	4-G	R	6-4 3/8x5	451	45.9	149-2600	368-1000	6.00	101-117	I	abcdf
67	Yellow Coach TG-36	36	CS	210½	367	339	81 5/8-72½	15180	9.00/20	GMC 529	4-G	R	6-4 5/8x5 1/4	529	51.3	158-2500	405-1000	5.50	90-120	I	abcdf
68	Yellow Coach TD-36	36	CS	210½	367	339	81 5/8-72½	14960	9.00/20	GM(2) 4-71	2-D	R	4-4 1/4x5	284	28.9	110-2000	350-1000	16.0	400-350	I†	abcdf
69	Yellow Coach TD-36	36	CS	210½	367	339	81 5/8-72½	15800	9.00/20	GM(2) 6-71	2-D	R	6-4 1/4x5	426	43.3	165-2000	525-1000	16.0	400-350	I†	abcdf
70	Yellow Coach TG-40	40	CS	239½	396	368	81 1/16-72½	15960	10.00/20	GMC 529	4-G	R	6-4 5/8x5 1/4	529	51.3	158-2500	405-1000	5.50	90-120	I	abcdf
71	Yellow Coach TD-40	40	CS	239½	396	368	81 1/16-72½	16550	10.00/20	GM(2) 6-71	2-D	R	6-4 1/4x5	426	43.3	165-2000	525-1000	16.0	400-350	I†	abcdf
72	Yellow Coach TG-45	45	CS	239½	420	392	81 1/16-72½	16860	10.00/20	GMC 529	4-G	R	6-4 5/8x5 1/4	529	51.3	158-2500	405-1000	5.50	90-120	I	abcdf
73	Yellow Coach TD-45	45	CS	239½	420	392	81 1/16-72½	17400	10.00/20	GM(2) 6-71	2-D	R	6-4 1/4x5	426	43.3	165-2000	525-1000	16.0	400-350	I†	abcdf

ABBREVIATIONS FOR BUSES

†—Exhaust valves only, Intake ports in cylinder walls
°—Others available
▼—11 leaves for Right side; 13 leaves for Left side
■—16 in. on rear
•—16½ on rear
♦—Two used
‡—9.00/18 Front; 7.50/20 Rear
††—1000-2000 R.P.M.
**—8.25 or 9.00/20
‡—9.00 or 10.00/20
‡‡—9.00/18 Front; 8.25/20 Rear
(1)—Oil pressure also to clutch pilot bearing, governor and air compressor
(2)—General Motors Diesel
(3)—17⅜ in. on rear
(4)—A.C.F. American Car & Foundry (J. G. Brill Co.)
(5)—Aerocoach. General American Aerocoach Co.
(6)—Beck. C. D. Beck & Co.
(7)—Flxible Clipper. The Flxible Co.
(8)—Ford. Ford Motor Co.
(9)—Mack. Mack Manufacturing Corp.
(10)—Reo. Reo Motors, Inc.
(11)—Twin Coach. Twin Coach Co.
(12)—White. The White Motor Co.
(13)—Yellow Coach. Yellow Truck & Coach Mfg. Co
a—Main Bearings
A—Air Pressure (Brakes)
Au—Automatic clutch
b—Wrist Pins
Bd—Budd Wheel Co.
BL—Brown-Lipe (Spicer Mfg. Corp.)
Bos—American Bosch Corp.
Bui—Buick Motor Co.
c—Connecting Rods
Car—Carter Carburetor Co.
Ce—Centrifugal
Che—Chevrolet Motor Div.
Cla—Clark Equipment Co.
C-P—City service or Parlor
Cr—Cranking speed
CS—City service
CS-S—City service and Suburban
d—Camshaft Bearings
D—Diesel or heavy oil
Dn—Dayton Steel Foundry Co

BUS CHASSIS

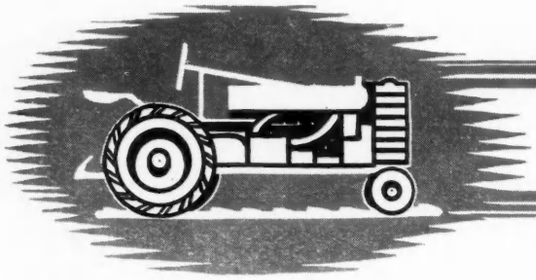
FUEL SYSTEM			ELECTRICAL SYSTEM			Gov-ernor			TRANSMISSION				Uni-versals		REAR AXLE		BRAKES				SPRINGS				RUNNING GEAR			
Carburetor or Injector Pump					Battery												Service			Hand	Front		Rear					
Make and Type	Size (In.)	Tank Capacity (Gal.)	Ignition System Make	Generator and Starter—Make	Voltage and Amp. Hours Capacity	Type	Max. Governed Speed—M.P.H.	Clutch—Make and Size (In. diam.)	Make	No. of Forward Speeds	Low Speed Ratio—to 1	Type	Number	Size of Series	Make and Model	Standard Gear Ratio—to 1	Type of Application	Total Lining Area (Sq. In.)	Drum Diameter	Operates on—	Total Lining Area (Sq. In.)	No. of Leaves	Length and Width (In.)	No. of Leaves	Length and Width (In.)	Front Axle—Make	Steering Gear—Make	Outside Diameter of Min. Turn. Circle (Ft.)	Line Number
Zen. Up	1½	60	DR	DR	12-138	Ce	52	Spi 13	BL	3	4.01	M	2	1500	Tim 54429	5.43	A	460	14½	Ds	70	12	56 -3	13	58½ -3	Tim	Ro	58	1
Zen. Up	1¾	77	DR	DR	12-138	Ce	58	Spi 13	BL	4	4.57	M	2	1500	Tim 56515	4.44	A	575	14½	Ds	76	10	56 -3½	13	60 -3½	Tim	Ro	74	2
Zen. Up	1¾	72	DR	DR	12-158	Ce	49	Spi 14	BL	3	3.80	M	2	1500	Tim 56515	5.29	A	575	14½	Ds	88	12	56 -3	16	60 -3½	Tim	Ro	62	3
Zen. Up	1¾	72	DR	DR	12-158	Ce	49	Spi 14	BL	3	3.80	M	2	1600	Tim 58282	5.57	A	692	16½	Ds	88	11	59 -3¼	13	60 -4	Tim	Ro	68	4
Zen. Up	2	120	DR	DR	12-158	Ce	60	Lg 15½	BL	4	4.36	M	2	1700	Tim 59023	4.62	A	867	17¼	Ds	121	12	58 -4	12	67 -5	Tim	Ro	80	5
Zen. Up	2	120	DR	DR	12-158	Ce	66	Spi 14	Cla	4	4.34	M	2	1600	Tim 58284	4.55	A	692	16½	Ds	88	12	57½ -3½	15	67 -4	Tim	Gem	87	6
Zen. Up	2	100	DR	DR	12-158	Ce	45	Lg 15½	BL	3	3.80	M	2	1600	Tim 58283	5.57	A	692	16½	Ds	88	12	62 -3½	12	64 -5	Tim	Ro	74	7
Zen. Up	2	100	DR	DR	12-158	Ce	48	Lg 17	Spi	3	3.32	M	2	1700	Tim 59028	5.57	A	768	16½	Ds	121	13	61 -3½	13	67 -4	Tim	Ro	80	8
Fo. Do	1¼	50	Fo	LN	12-150	Su	70	L-F 11	BL	3	3.55	M	2	1300	Tim 53000	5.14	H	237	16	RW		10	48 -3	10	62 -3	Tim	Ro	74	9
Fo. Do	1¼	50	Fo	LN	12-150	Su	70	Lg 11	Spi	3	3.55	M	2	1300	Tim 53000	5.14	H	237	16	RW		10	48 -3	10	62 -3	Tim	Ro	74	10
Fo. Do	1¼	50	Fo	LN	12-150	Su	70	L-F 11	BL	3	3.55	M	2	1300	Tim 53526	5.14	A	237	16	RW		10	48 -3	10	62 -3	Tim	Ro	74	11
Fo. Do	1¼	50	Fo	LN	12-150	Su	70	L-F 11	BL	3	3.55	M	2	1300	Tim 53526	5.14	A	237	16	RW		10	48 -3	10	62 -3	Tim	Ro	74	12
Zen. Do	1¼	100	DR	DR	12-158	Ce	72	Lg 14	Cla	5	4.64	M	2	1500	Tim 56428	5.14	A	452	16¼*	Ds	95	10	51¼ -3	*	65 -3	Tim	Ro	62	13
Zen. Do	1½	100	DR	DR	12-158	Ce	72	Lg 14	Cla	5	4.64	M	2	1500	Tim 56428	5.14	A	452	16¼*	Ds	95	10	51¼ -3	*	65 -3	Tim	Ro	70	14
Car. Do	1¼	40	DR	DR	6-94			Che. 10¾	Che	4	7.20	M	4		Che	5.42	H			RW			46 -2½		52 -2½	Tim	Ro		15
Zen. Do	1¼	63	DR	DR	12-140	Su	70	Roc. 13⅞	Fu	5	6.52	M	2	1500	Tim 56410PA	5.27	A	595	16	Ds	35	13	52 -3	17	58 -3	Tim	Ro		16
Zen. Do	1½	63	DR	DR	12-140	Su	70	Roc. 13⅞	Fu	5	6.52	M	2	1500	Tim 56410PA	5.27	A	625	16	Ds	35	13	52 -3	17	58 -3	Tim	Ro		17
Zen. Do	1½	63	DR	DR	12-140	Su	70	Roc. 13⅞	Fu	3	6.52	M	2	1500	Tim 56410PA	5.27	A	625	16	Ds	35	13	52 -3	17	58 -3	Tim	Ro		18
Car. Up	1¼	30	DR	DR	6-120	No		Che 11	Che	4	7.22	M	4	1300	Che COE	5.43	H	330	14■	RW	214	10	39 -2	12	55½ 2½	Che	Che	66½	19
Car. Do	1¼	40	DR	DR	12-120	Su	58	Che 11	Cla	4	6.35	M	2	1400	Tim 53542TWX	5.67	A	389	16	Ds	84	12	52 -2½	15	54 -2½	Tim	Ro	67	20
Car. Do	1¼	40	DR	DR	12-120	Su	58	Che 11	Cla	4	6.35	M	2	1400	Tim 53542TWX	5.67	A	389	16	Ds	84	12	52 -2½	15	54 -2½	Tim	Ro	67	21
Str. Do	1	40	DR	DR	12-120	Ce	58	Spi 13	BL	4	4.57	M	2	1500	Tim 56410PAX	4.44	A	542	16⅜*	Ds	84	12	52 -3	15	54 -3	Tim	Ro	67	22
Str. Do	1	40	DR	DR	12-120	Ce	58	Spi 13	BL	4	4.57	M	2	1500	Tim 56410PAX	5.29	A	542	16⅜*	Ds	84	12	52 -3	15	54 -3	Tim	Ro	67	23
Fo. Do	1¼	60	Fo	Fo	12-158	Su	50	L-F 11	BL	3	3.81	M	2		Tim	5.83	A	472	14½	Ds	55½	10	54 -3	14	58 -3	Tim	F-G	61	24
Str. Up	1½	55	DR	DR	12-158	Su	51	Mack 14	Mack	3	4.02	M	2	1500	Mack RA83	Op	A	587	16½	Ds	82	10	60 -3½	14	60 -4	Mack	Mack	59	25
Str. Up	1¾	65	DR	DR	12-158	Ce	51	Mack 14	Mack	3	4.02	M	2	1500	Mack RA83	Op	A	587	16½	Ds	82	10	60 -3½	14	60 -4	Mack	Mack	59	26
Str. Up	1¾	65	DR	DR	12-158	Ce	51	Mack 14	Mack	3	4.02	M	2	1500	Mack RA83	Op	A	587	16½	Ds	82	11	60 -3½	16	60 -4	Mack	Mack	67	27
Str. Up	1¾	70	DR	DR	12-158	Ce	62	WL 15	Mack	3	3.80	M	2	1600	Mack RA68	4.44	A	656	16½	Ds	82	11	60 -3½	17	60 -4	Mack	Mack	67	28
Str. Up	1¾	80	DR	DR	12-158	Ce	62	WL 15	Mack	3	3.80	M	2	1600	Mack RA68	4.44	A	656	16½	Ds	82	12	60 -3½	17	60 -4	Mack	Mack	74	29
Str. Up	1¾	80	DR	DR	12-198	Ce	57	WL 15	Mack	3	4.75	M	2	1700	Mack RA42	3.08	A	816	16½	Ds	90	11	60 -4	17	60 -4	Mack	Mack	79	30
Bos. Mu		80	N	DR	12-24-352	Ce			GW			E	2	1700	Mack RA81	8.76	A	816	16½	Ds	90	11	60 -4	17	60 -4	Mack	Mack	85	31
Zen. Do	1¼	38	DR	DR	12-152	Su		Lg 12	Cla	4	6.35	M	2	O-96	Tim 55411	5.71	H	354	16	Ds	56	11	50 -3	12	54 -3	Tim	Ro	60	32
Zen. Do	1½	38	DR	DR	12-152	Su		Lg 12	Cla	4	6.35	M	2	O-96	Tim 55411	5.71	H	402	16 (3)	Ds	56	11	50 -3	12	54 -3	Tim	Ro	60	33
Zen. Do	1½	38	DR	DR	12-152	Su		Lg 12	Cla	4	6.35	M	2	O-96	Tim 56427	5.71	H	402	16 (3)	Ds	56	11	50 -3	12	54 -3	Tim	Ro	60	34
Zen. Up	1¼	55	DR	DR	12-117	Su	43	Spi 13	BL	3	4.11°	M	2	1200	Tim 53537	5.14	A	472	14½	Ds	31½		(T)		(T)	Tim	Ro	62	35
Zen. Up	1¼	55	DR	DR	12-134	Su	43	Spi 13	BL	3	4.11°	M	2	1200	Tim 53537	5.14	A	472	14½	Ds	31½		(T)		(T)	Tim	Ro	71	36
Zen. Up	1½	60	DR	DR	12-134	Su	44	Spi 13	BL	3	4.11°	M	2	1200	Tim 54419	5.28	A	472	14½	Ds	31½		(T)		(T)	Tim	Ro	71	37
Zen. Up	1½	60	DR	DR	12-134	Su	44	Spi 13	BL	3	4.11°	M	2	1200	Tim 54419	5.28	A	472	14½	Ds	31½		(T)		(T)	Tim	Ro	79	38
Zen. Up	1¾	60	DR	DR	12-134	Su	44	Spi 13	BL	3	4.11°	M	2	1200	Tim 56219	5.23	A	576	16½	Ds	31½		(T)		(T)	Tim	Ro	79	39
Zen. Up	1¾	80	DR	DR	12-134	Su	44	Spi 13	BL	3	4.11°	M	2	1200	Tim 56218	5.23	A	576	16½	Ds	31½		(T)		(T)	Tim	Ro	63	40
Zen. Up	2	100	DR	DR	12-134	Su	51	Spi 14	BL	3	3.97°	M	2	1600	Tim 58267	5.12	A	720	16½	Ds	61		(T)		(T)	Tim	Ro	71½	41
Bos.		75	N	DR	12-134								2	1600	Tim 58268	6.17	A	720	16½	Ds	61		(T)		(T)	Tim	Ro	71½	42
Zen. Up	2	100	DR	DR	12-134	Su	51	Spi 14	BL	3	3.97°	M	2	1600	Tim 58267	5.12	A	720	16½	Ds	61		(T)		(T)	Tim	Ro	80½	43
Bos.		100	N	DR	12-134								2	1600	Tim 58268	6.17	A	720	16½	Ds	61		(T)		(T)	Tim	Ro	80½	44
Bos.		100	N	DR	12-134								2	1600	Tim 58268	8.64	A	720	16½	Ds	61		(T)		(T)	Tim	Ro	91⅛	45
Str. Do	1¼	65	DR	DR	12-158	Ce		WL 14	Own	3	3.81	M	2	1500	Own 102C	5.71	A	691	15	Ds	47½	10	58⅛ -3½	10	64 -4	Own	Ro	51½	46
Str. Do	1¼	65	DR	DR	12-158	Ce		WL 14	Own	3	3.81	M	2	1500	Own 102C	5.71	A	691	15	Ds	47½	10	58⅛ -3½	10	64 -4	Own	Ro	51½	47
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	58	48
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	10	58⅜ -3½	13	64 -4	Own	Ro	58	49
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	58	50
Zen. Ho	1⅜	135	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	64½	51
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	64½	52
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	64½	53
Zen. Ho	1⅜	135	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	72	54
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	12	58⅜ -3½	14	64 -4	Own	Ro	72	55
Zen. Ho	1⅜	105	DR	DR	12-158	Ce		Lg 14	Own	3	3.32	M	2	1700	Own 34C	5.22	A	818	15	Ds	123	11	58⅜ -3½	14	64 -4	Own	Ro	72	56
Car. Do	1⅜	35	DR	DR	12-95			In. 11	Che	4	7.06	M	3	1350	Tim 53000	6.17	H	436	16	RW	218	10	44 -2½	10	54 -2½	Tim	Sag	61⅜	57
Zen. Do	1⅜	35	DR	DR	12-95	Su	46	In. 11	Cla	3	3.90	M	2	1400	Tim 53000	6.17	H	442	16¼	RW	221	12	48 -2½	11	54½ 2½	Cla	Sag	61⅜	58
Zen. Do	1⅜	60	DR	DR	12-95	Ce	58	Lg 14	Cla	4	5.00	M	2	1500	Tim 53000	4.57	A	496	14½	DS	88½	9	50 -3	10	58 -3	Tim	Sag	69⅜	59
Zen. Do	1⅜	50	DR	DR	12-95	Su	47	In. 11	Cla	3	3.90	M	2	1400	Tim 53000	6.17	A	496	14½	Ds	88½	14	48 -2½	14	54½ -3	Tim	Sag	59⅛	60
GM(2)		50	N	DR	12-126	Ce	42	Lg 14	Cla	4	4.88	M	2	1500	Tim 55000	4.44	A	496	14½	Ds	88½	14	49 -2½	14	52½ -3	Tim	Sag	55⅜	61
Zen. Do	1¾	110	DR	DR	12-113	Ce	65	Lg 14	Cla	4	4.88	M	2	1500	Tim 55000	4.11	A	620	14½	Ds	88½	10	49¾ -3	13	58 -3	Tim	Sag	75⅜	62
GM(2)		110	N	DR	12-126	Ce	53	Lg 15½	Cla	4	4.34	M	2	1500	Tim 55000	4.11	A	620	14½	Ds	88½	11	49¾ -3	15	58 -3	Tim	Sag	75⅜	63
Zen. Do	1¾	85	DR	DR	12-126	Su	51	Lg 14	BL	3	3.50	M	2	1600	Tim 55000	5.14	A	587	14½	Ds	69	11	58 -3½	13	62 3½	Tim	Sag	66⅛	64
GM(2)		85	N	DR	12-126	Ce	45	Lg 15½	BL	3	3.50	M	2	1600	Tim 55000	4.72	A	587	14½	Ds	69	11	58 -3½	13	62½ 3½	Tim	Sag	66⅛	65
Zen. Do	1¾	85	DR	DR	12-126	Ce	47	Lg 14	BL	3	3.50	M	2	1600	Tim 57000	5.14	A	586	14½	Ds	69	12	58 -3½	14	62 -3½	Tim	Sag	74	66
Zen. Do	2	85	DR	DR	12-126	Ce	56	Lg 15½	BL	3	3.32	M	2	1700	Tim 58000	3.44	A	646	14½	Ds	104	12	58 -3½	13	62 -3½	Tim	Sag	74	67
GM(2)		85	N	DR	12-126	Ce	45	Lg 15½	BL	3	3.50	M	2	1600	Tim 57000	4.72	A	587	14½	Ds	69	12	58 -3½	14	62 -3½	Tim	Sag	74	68
GM(2)		85	N	DR	12-126	Ce	53	Lg 17	BL	3	3.32	M	2	1700	Tim 58000	3.44	A	646	14½	Ds	104	12	58 -3½	13	62 -3½	Tim	Sag	74	69
Zen. Do	2	85	DR	DR	12-95	Ce	57	Lg 15½	BL	3	3.32	M	2	1700	Tim 58000	3.44	A	705	14½	Ds	104	13	59 -3½	13	62 -4	Tim	Sag	83	70
GM(2)		85	N	DR	12-126	Ce	54	Lg 17	BL	3	3.32	M	2	1700	Tim 58000	3.44	A	705	14½	Ds	104	13	58 -3½	13	62 -4	Tim	Sag	83	71
Zen. Do	2	85	DR	DR	12-95	Ce	59	Au 16	BL	3	3.32	M	2	1700	Tim 59000	3.44	A	705	14½	Ds	104	13	58 -3½	16	62 -4	Tim	Sag	80	72
GM(2)		85	N	DR	12-126	Ce	54	Au 16	BL	3	3.32	M	2	1700	Tim 58000	3.44	A	705	14½	Ds	104	13	58 -3½	16	62 -4	Tim	Sag	80	73

Do—Downdraft
DR—Delco-Remy Div.
Ds—Drive Shaft
e—Accessory Drive
E—Electric
f—Valve lifters or Rocker Arms and Shafts
F-G—Ford-Gemmer
FH—Front end, under hood
FI—Front Inside
Fo—Ford Motor Co.
Fu—Fuller Mfg. Co.
g—Timing Gears
G—Gasoline

Gem—Gemmer Mfg. Co.
G.M.C.—General Motors Truck & Coach Mfg. Co.
GW—General Electric or Westinghouse generator and propulsion motor
h—Air Compressor
H—Hydraulic
Her—Hercules Motor Corp.
Ho—Horizontal
HS—Hall-Scott Motor Car Co.
I—In-Head (Valves)
In—Inland Mfg. Div.
Int—International Harvester Co.

L—At Side (Valves)
L-F—Long-Ford
Lg—Long Mfg. Div.
LN—Leece-Neville Co.
M—Mechanical
Mu—Multiple Unit
MW—Motor Wheel Corp.
N—No or None
Op—Optional
Par—Parlor Coach
R—Rear (Engine Location)
Ro—Ross Gear & Tool Co.
Roc—Rockford Drilling Machine Div.

RW—Rear Wheels
S—Suburban Coach
Sag—Saginaw Steering Gear Div.
Spi—Spicer Mfg. Corp.
Str—Stromberg Carburetor Div.
Su—Suction
(T)—Gravity Torsion Rod Suspension
Tim—Timken Detroit Axle Co.
UFA—Under Floor, Amidship
Up—Updraft
Whi—White Motor Co.
WL—W. C. Lipe, Inc.
Zen—Zenith Carburetor Co.



AMERICAN

Wheel

Line Number	TRACTOR MAKE AND MODEL	GENERAL						DRAW-BAR		OVERALL DIMENSIONS			WHEELS				HP. RATING					Travel Speeds at Normal Governed Engine R.P.M. (M.P.H.) with Standard Wheels		
						TREAD (In.)								STEEL Diam. and Face		TIRE SIZE								
		Wheelbase (In.)	Minimum Turning Radius—Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	Minimum	Maximum	Lateral Adjustment (In.)	Height Above Ground (In.)	Length (In.)	Width (In.)	Height—To Highest Point (In.)	Standard Equipment	Front (In.)	Rear (In.)	Front (In.)	Rear (In.)	Belt	Drawbar	Nebraska Test Number	Power Take-off	Number of Forward Speeds	Number of Reverse Speeds	First	Second	Third
1	Allis-Chalmers B	73 11/16	7 3/4	21 3/4 †	2060	40 1/2	52 1/2	22 1/4	12 1/2	110 1/2	52 11/16	62 3/4	RT			4.00/15	9.00/24	16.31*	13.54*	302	Op	3	1	2.59	4.08	7.90
2	Allis-Chalmers IB	57 7/16	7	12 7/8	2345	40 1/2	52 1/2	N	12 3/8	96	52 11/16	54 1/2	RT			5.00/15	9.00/24	16.31*	13.54*	...	Op	3	1	2.48	3.91	7.58
3	Allis-Chalmers C	77	7	23 1/4 †	2230	52	80	22 1/4	12 1/4	114	68 1/2	62 3/4	RT			4.00/15	9.00/24	23.81■	18.74■	364	Op	3	1	2.42	3.83	7.42
4	Allis-Chalmers WC	87 1/16	8	29 1/4 †	3310	64 5/8	75 1/2	10 1/2	16	128 1/2	76 3/8	67 1/4	RS	24x4	40x6	5.50/16	11.00/28	31.43■	23.58■	304	Op	4	1	2.64	3.84	5.10
5	Allis-Chalmers WF	70	12	11 †	3940	45 5/8	56 1/2	10 1/4	14 1/4	117 1/2	57 1/4	60 1/4	RS	24x4	40x6	5.50/16	11.00/28	31.43■	23.58■	...	Op	4	1	2.64	3.84	5.10
6	Allis-Chalmers IU	76 11/16	14 1/2	10 1/4	4960	55 1/2	55 1/2	N	13 3/4	119 1/2	67 1/4	61	RT			7.50/16	14.00/24	39.50■	31.80■	...	Op	4	1	2.40	3.39	4.00
7	Allis-Chalmers U	76 11/16	14 1/2	10 1/4	5220	55 1/2	55 1/2	9	13 1/2	123 1/2	67 3/8	74 1/2	RS	28x6	45x11 1/2	6.00/16	11.25/28	39.50■	31.80■	...	Op	4	1	2.73	3.55	4.95
8	Allis-Chalmers UC	87 1/16	8	30 1/4	5375	69	80	8 3/4	15	144	80 3/4	84 1/2	RS	24x5	45x11 1/2	6.00/16	11.25/28	39.50■	34.00■	...	Op	4	1	2.69	3.48	4.84
9	Allis-Chalmers A	90 5/8	17 1/2	10 1/2	7000	61 1/2	61 5/8	17 1/2	17 3/4	142 1/4	76 1/2	75 3/4	RT			7.50/18	13.50/28	50.50■	41.50■	...	Op	4	1	2.61	3.90	5.16
10	Case V	70	9	11	...	40	60	12	14	107	55	63	RS	25x4	38x8	4.00/15	8.00/24	...	...	...	Op	4	1	2.33	3.00	4.75
11	Case VC	80	7 1/2	14	...	44	82	12	14	116	74	71 1/4	RS	25x4	42x2 1/2	4.00/15	7.00/32	...	...	348	Op	4	1	2.50	3.50	5.25
12	Case VO	70	9	11	...	40	60	12	11	107	55	50	RS	25x4	38x8	4.00/15	8.00/24	...	...	...	Op	4	1	2.33	3.00	4.75
13	Case VI	70	9	...	...	40	60	N	...	107	55	63	RT			4.00/15	8.00/24	...	...	...	Op	4	1	2.28	3.14	4.03
14	Case S	66	10	10	...	46	...	21	10	108 1/2	36 3/4	83	RS	25x4	42x8	5.00/15	10.00/26	...	...	...	Op	4	1	2.50	3.50	4.75
15	Case SC	82 1/2	10	...	...	44	80	21	13	126 1/4	74 1/2	86	RS	24 1/4 x3 1/2	48x2 1/2	5.00/15	9.00/38	...	...	367	Y	4	1	2.50	3.50	4.75
16	Case SO	66	10	10	...	46	...	21	10	108 1/2	36 3/4	51	RS	25x4	42x8	5.00/15	10.00/26	...	...	...	Op	4	1	2.00	2.75	3.75
17	Case SI	66	10	...	...	48 1/2	...	N	...	108 1/2	58	...	RT			5.50/16	10.00/24	...	...	...	Op	4	1	2.39	3.39	4.66
18	Case D	66 3/8	10	...	...	48 1/2	...	29	10 1/8	116	61 1/2	79	RS	28x5	42x11 1/4	6.00/16	11.00/26	...	...	349	Op	4	1	2.50	3.50	4.75
19	Case DC	89	...	...	...	48	84	29	13 1/8	134 1/2	55	84	RS	25x5	48x2 1/2	5.50/16	10.00/38	...	...	340	Y	4	1	2.50	3.50	4.75
20	Case DO	66 3/8	10	...	...	50 1/4	...	29	10 1/8	116	62	50	RT			6.00/16	11.00/26	...	...	...	Op	4	1	1.75	3.50	4.75
21	Case DI	66 3/8	10	...	...	...	...	N	...	90	...	...	RT			6.00/16	11.25/24	...	...	...	Op	4	1	2.89	4.14	5.67
22	Case LA	82	13	...	...	59 1/2	...	33 1/4	11	138	72	84	RS	30x6	48x12	7.50/20	12.00/30	...	...	...	Op	4	1	2.75	3.75	4.50
23	Case LAI	82	13	...	...	59 1/2	...	N	...	138	72	...	RT			7.50/20	15.00/28	...	...	...	Op	4	1	2.14	3.85	4.78
24	Eagle 6C	78	13	22	3250	48	59	18	13	124 1/2	60	60	RS	26x6	40x10	6.00/16	11.25/24	28.00	18.00	...	Op	4	1	1.80	3.50	5.00
25	Eagle 6B	82	7 3/4	28	3250	68	79	20	14	130	86	72	RS	24x4	40x10	5.50/16	11.25/24	28.00	18.00	...	Op	4	1	1.80	3.50	5.00
26	Eagle 6A	80	15	12	5000	40	46	8	14	130	70	76	RS	30x6	48x12	7.50/18	12.75/28	37.00	22.00	184	Op	3	1	2.50	3.30	5.00
27	Ford-Ferguson 9N	70	7 1/2	13	2265	48	76	20	17 1/2	115	64	52	RT	...	...	4.00/19	10.00/28	20.29	12.68	339	Y	3	1	2.51	3.23	7.48
28	Huber B	84 1/2	...	...	3000	52	73	24	14	127 1/2	61	69	RT	25x4 1/2	50x8	5.50/16	9.00/36	28.24	21.71	292	Op	4	1	2.00	3.20	4.30
29	Huber LC	85 1/2	9 1/4	...	...	73	...	20	15	130	82 1/2	78	SW	25x4 1/2	42x8	6.00/16	11.25/24	44.02	30.96	291	Op	3	1	2.40	3.50	4.50
30	Huber HK	83 3/4	15	12	...	64	...	24	13 1/2	137 1/4	73	78	RT	34x6	50x12	7.50/18	12.75/28	...	...	...	Op	2	1	2.32	3.08	....
31	International (1) A	70	9	21	1800	40	68	19	10 5/8	104 1/8	56 1/8	63	RT			4.00/15	8.00/24	...	...	...	Op	4	1	2.25	3.50	4.62
32	International I-4	66 1/2	10	14 1/2 †	3700	...	46	...	10 15/16	112 5/8	58	61 5/8	RT			5.50/16	12.00/24	...	...	...	Op	5	1	2.10	3.50	5.00
33	International I-6	76	11 1/2	14 1/2 †	4700	...	50	...	10 3/8	124 7/8	63 1/2	68 7/8	RT			6.00/16	13.00/24	...	...	...	Op	5	1	2.10	3.60	5.20
34	International ID-6	76	11 1/2	14 1/2 †	5000	...	50	...	10 3/8	124 7/8	63 1/2	68 7/8	RT			6.00/16	13.00/24	...	...	...	Op	5	1	2.10	3.60	5.20
35	International I-9	83 3/8	15	14 1/2 †	6200	...	50 1/2	...	15 3/8	131 7/8	66 3/4	68 5/8	RT			7.50/18	13.00/32	...	...	...	Op	5	1	2.30	3.10	5.20
36	International ID-9	83 3/8	15	14 1/2 †	6400	...	50 1/2	...	15 3/8	131 7/8	66 3/4	68 5/8	RT			7.50/18	13.00/32	...	...	...	Op	5	1	2.30	3.10	5.20
37	I. H. C. Farmall (2) A	71	9	21	1800	40	68	19	10 5/8	104 3/4	56 1/8	63	RT			4.00/15	8.00/24	19.06	17.35	329	Op	4	1	2.25	3.50	4.62
38	I.H.C. Farmall AV	71 1/4	8 2/5	26 7/8	2225	48	68	19	10 5/8	115	61 3/4	69	RT			4.00/19	8.00/36	19.06	17.35	330	Op	4	1	2.87	4.62	6.12
39	I.H.C. Farmall B	72 1/2	7 1/2	23 1/4	1730	64	92	33 1/4	10 1/8	107 1/2	79 1/2	63	RT			6.00/12	8.00/24	19.22	17.31	331	Op	4	1	2.25	3.50	4.62
40	I.H.C. Farmall H	88 1/2	8 1/2	23 1/4	3200	44	80	26	12	126 3/4	75 1/2	74	SW	22 1/2 x3 1/2	51x6	6.00/16°	10.00/38	24.34	22.65	334	Op	4	1	2.62	3.50	4.25
41	I.H.C. Farmall M	88 1/4	8 1/2	23 1/4	4350	52	88	26	12	126 3/4	84 1/2	76	SW	22 1/2 x4	51x8	6.00/16	11.00/38	36.70	32.86	327	Op	4	1	2.62	3.50	4.25
42	I.H.C. Farmall MD	90	8 1/2	23 1/4	4650	52	88	26	15	126 3/4	84 1/2	75 1/2	SW	22 1/2 x4	51x8	6.00/16	11.00/38	36.56	33.04	368	Op	4	1	2.62	3.50	4.25
43	I.H.C.-McC.-D (2) W-4	66 1/2	10	13 1/4 †	3350	...	50 1/2	18 1/4	10	113 1/8	58 1/2	60	SW	22 1/2 x3 1/2	40x8	5.50/16	11.25/24	24.87	22.49	342	Op	4	1	2.37	3.12	4.00
44	I.H.C.-McC.-D O-4	66 1/2	10	...	3600	...	41 3/4	28	12 1/4	120 1/2	60 1/4	55 7/8	RT			5.50/16	11.25/24	24.87	22.49	...	Op	5	1	1.50	3.12	3.87
45	I.H.C.-McC.-D W-6	76	11 1/2	13 1/2 †	4300	...	53	18 1/4	10	124 3/8	63	64 5/8	SW	22 1/2 x4	42x10	6.00/16	12.75/24	36.69	32.80	354	Op	4	1	2.37	3.12	4.00
46	I.H.C.-McC.-D WD-6	76	11 1/2	13 1/2 †	4550	...	53	18 1/4	10	124 3/8	63	64 5/8	SW	22 1/2 x4	42x10	6.00/16	12.75/24	36.38	31.38	356	Op	4	1	2.37	3.12	4.00
47	I.H.C.-McC.-D O-6	76	11 1/2	13 †	4600	...	45	27 5/8	12	133 1/2	65	59	RT			6.00/16	12.75/24	36.69	32.80	...	Op	5	1	1.50	3.00	4.00
48	I.H.C.-McC.-D. W-9	83 1/16	15	14 1/2 †	5600	...	56 1/8	18 3/4	11 5/8	133 1/2	68 1/16	66	RS	30x6	48x12	7.50/18	13.50/32°	52.36■	47.06■	369	Op	5	1	2.25	3.00	4.25
49	I.H.C.-McC.-D WD-9	83 3/8	15	14 1/2 †	5850	...	56 1/8	18 3/4	11 5/8	133 1/2	68 1/8	66	RS	30x6	48x12	7.50/18	13.50/32°	49.17	44.78	370	Op	5	1	2.25	3.00	4.25
50	John Deere A	90	8 2/3	10	4351	56	84	26 1/2	9 3/8	133 1/8	83	79 1/2	RT			5.50/16	10.00/38	...	...	335	Y	6	1	2.50	3.25	4.25
51	John Deere B	85	7 1/2	12 1/8	3461	56	84	24	11 1/2	127 1/4	83	78 1/8	RT			5.00/15	9.00/38	...	...	366	Y	6	1	2.50	3.25	4.25
52	John Deere G	90 1/4	8 1/2	11 1/2	4928	60	84	24 3/4	10 1/4	135	84 3/4	86 3/4	RT			6.00/16	11.00/38	...	...	295	Y	4	1	2.33	3.33	4.50
53	John Deere H	76	7 1/2	10 1/2	2080	44	84	16 3/4	10	112 3/4	79 1/4	73 3/8	RT			4.00/15	8.00/32	...	...	312	Op	3	1	2.50	3.50	5.75
54	John Deere D	70	14	8 1/2	5558	55	...	39 1/2	11 1/4	130 1/2	70	86 3/4	RT			7.50/18	13.00/30	...	...	350	Op	3	1	2.66	3.66	4.66
55	Massey-Harris 81R	82 1/2	7 1/2	...	2560	48	88	18 3/4	...	119	81 1/2	57 1/2	RT			4.00/15	7.00/32°	28.34	21.60	376	Op	4	1	2.50	3.60	4.70
56	Massey-Harris 82S	82 1/2	10	...	...	48	48	18 3/4	...	119	...	...	RT			5.00/15	7.00/32°	...	...	...	Op	4	1	2.50	3.60	4.70
57	Massey-Harris 101JS	78	11 1/2	13 5/8	3240	52	52	20 1/8	11 7/8	124 1/2	62 1/2	64 1/4	RT	28x4 1/2	44x10	5.00/15	10.00/28	32.24	25.93	...	Op	4	1	2.40	3.40	4.50
58	Massey-Harris 101JR	83 1/2	11 1/2	...	3070	52	90	20 1/8	14 7/8	133	...	68 1/2	RT	22x4	50x8°	5.00/15	9.00/36	32.24	25.93	359	Op	4	1	2.40	3.40	4.50
59	Massey-Harris 102JS	78	11 1/2	13 5/8	3240	52	52	20 1/8	11 7/8	124 1/2	62 1/2	64 1/4	RT	28x4 1/2	44x10	5.00/15	10.00/28	...	...	...	Op	4	1	2.40	3.40	4.50
60	Massey-Harris 102JR	83 1/2	11 1/2	...	3070	52	90	20 1/8	14 7/8	133	...	68 1/2	RT	22x4	50x8°	5.00/15	9.00/36	...	...	...	Op	4	1	2.40	3.40	4.50
61	Massey-Harris 101S	78	11 1/2	12 7/8	3420	52	52	20 1/8	11 7/8	126 1/4	66 1/4	63 1/4	RT	28x4 1/2	44x10	6.00/16	12.00/26	47.91	36.67	306	Op	4	1	2.40	3.40	4.50
62	Massey-Harris 102S	78	11 1/2	12 7/8	...	52	52	20 1/8	15 3/4	126 1/4	66 1/4	63 1/4	RT	28x4 1/2	44x10	6.00/16	12.00/26	...	...	...	Op	4	1	2.56	3.58	5.15
63	Massey-Harris 101R	89 1/4	11 1/2	13 1/4	3350	52	90	20 1/8	14 7/8	133	...	71 1/2	RT	22x4 1/2	50x8°	5.00/15	10.00/38	47.91	36.67	307	Op	4	1	2.40	3.40	4.50
64	Massey-Harris 102R	89 1/2	11 1/2	13 1/4	...	52	88	20 1/8	19 1/4	133	...	71 1/2	RT	22x4	50x8	5.00/16	10.00/38	...	...	...	Op	4	1	2.76	3.87	5.55
65	Massey-Harris 202	89	...	...	6500	55	55	...	10 1/16	139 1/2	69	59 1/4	RT	30x6	46x12°	7.50/18	14.00/30	...	...	...	Op	4	1	2.48	3.51	4.32
66	Massey-Harris 203S	89	...	...	6500	55	55	...	10 1/16	139 1/2	69	59 1/4	RT	30x6	46x12°	7.50/18	14.00/30	...	...	...	Op	4	1	2.48	3.51	4.32
67	M-M Twin City (3) RTU	76	7 1/2	20 1/2 †	2720	52	84	13 1/2	14 1/2	112	81 1/4	62	RT			4.00/15	8.00/36	24.10	20.77	341	Op	4	1	2.30	3.30	4.20
68	M-M Twin City RTS	69	9	12 3/8 †	2800	47 1/2 (d)	54 1/2 (d)	13 1/2	14 1/2	108	81 1/4	62	RT			4.00/15	8.00/36	24.10	20.77	...	Op	4	1	2.30	3.30	4.20
69	M-M Twin City RTI	66 1/2	9	11	3350	45 (e)	...	4 1/2	13	104	55	63	RT			5.00/15	9.00/24	24.10	20.77	...	Op	4	1	2.90	4.10	5.20
70	M-M Twin City ZTU	82	8	23 †	3690	54	84	10	14 1/2	127	87 1/4	87	RT	25x4 1/2	50x8	5.50/16	9.00/38	32.88	27.97	352	Op	5	1	2.20	2.70	3.70
71	M-M Twin City ZTS	72 1/4	9	12 3/4 †	3675	47 1/2	...	10	14 1/2	122	60	87	RT	25x4 1/2	50x8	5.50/16	9.00/38	32.88	27.97	...	Op	5	1	2.20	2.70	3.70
72	M-M Twin City ZTI	72 3/4	10	11 1/2 †	4200	49	...	...	14	123	63 1/4	87	RT	...	...	5.50/16	13.50/24	32.88	27.97	...	Op	5	1	2.10	2.50	3.50

(For abbreviations see pages 116-117)

TRACTORS

Type

Travel Speeds at Normal Governed Engine R.P.M. (M.P.H.) with Standard Wheels				ENGINE							FUEL											BELT PULLEY				CAPACITIES							
Fourth	Fifth	Sixth	Reverse	Make and Model	Number of Cylinders—Bore and Stroke (In.)	Piston Displacement (Cu. In.)	R.P.M. at Governed Speed	Valve Arrangement	Number of Main Bearings	Diameter of Main Bearings	Standard	Optional	Ignition—Make	Carburetor or Injector Pump—Make	Air Cleaner—Make	Governor—Make	Oiling System—Type	Cooling System—Type	Clutch—Make and Type	Final Drive—Type	Diameter (In.)	Face (In.)	Normal R.P.M.	Steering Type	Cooling System (Gal.)	Fuel Tank (Gal.)	Crankcase (Qts.)	Transmission (Qts.)	Final Drive Case (Qts.)	Starting Method	Line Number
.....	.....	.....	2.99	Own....B	4–3¼x3½	116	1400	I	3	2¼	G-K-D	.....	FM	Zen	Don	Own	P	Pu	Roc...SP	SG	8	5½	1054	FK	2	13	4	6	¾	Ele	1
.....	.....	.....	2.87	Own....B	4–3¼x3½	116	1400	I	3	2¼	G	.....	FM	Zen	Don	Own	P	Pu	Roc...SP	SG	8	5½	1054	FK	2	13	4	6	¾	Ele	2
.....	.....	.....	2.80	Own....C	4–3⅜x3½	125	1500	I	3	2¼	G-K-D	.....	FM	Zen	Don	Own	P	Pu	Roc...SP	SG	8	5½	1129	VCS	2	13	4	6	¾	Ele	3
9.77	.....	.....	2.20	Own....W	4–4x4	201	1300	I	3	(a)	G-K-D	.....	FM	Zen	Uni	Own	P	Pu	Roc...SP	SG	9	6½	1170	VCS	4	15	6	4	½	Ele	4
9.77	.....	.....	2.20	Own....W	4–4x4	201	1300	I	3	(a)	G-K-D	.....	FM	Zen	Uni	Own	P	Pu	Roc...SP	SG	9	6½	1170	FK	4	15	6	4	¾	Ele	5
10.25	.....	.....	2.85	Own...UM	4–4½x5	318	1200	I	3	2½	G	K-D	FM	Zen	Don	Own	P	Pu	Roc...SP	SG	10	7⅛	1094	FK	6	24	10	48	.....	HC▼	6
11.65	.....	.....	3.12	Own...UM	4–4½x5	318	1200	I	3	2½	G-K-D	.....	FM	Zen	Don	Own	P	Pu	Roc...SP	SG	10	7⅛	1094	FK	6	24	10	48	.....	HC▼	7
11.43	.....	.....	3.06	Own...UM	4–4½x5	318	1200	I	3	2½	G-K-D	.....	FM	Zen	Don	Own	P	Pu	Roc...SP	SG	10	7⅛	1094	VCS	6	24	10	48	2	HC▼	8
10.19	.....	.....	3.28	Own....A	4–4¾x6½	461	1000	I	3	3	G	K-D	FM	Zen	Vor	Own	P	Pu	Roc...SP	SG	13	8½	928	FK	11½	28	14	48	.....	HC▼	9
10.00	.....	.....	2.00	.....	4–3x4⅜	124	1425	L	3	2¼	G	D	.....	Mar	Uni	.....	P	Pu	.....	SP	SG	10¼	6¼	1105	FK	3	10	4	8¼	20	HC▼	10
11.00	.....	.....	2.25	.....	4–3x4⅜	124	1425	L	3	2¼	G	D	.....	Mar	Uni	.....	P	Pu	.....	SP	SG	10¼	6¼	1105	SA	3	10	4	8¼	20	HC▼	11
10.00	.....	.....	2.00	.....	4–3x4⅜	124	1425	L	3	2¼	G	D	.....	Mar	Uni	.....	P	Pu	.....	SP	SG	10¼	6¼	1105	FK	3	10	4	8¼	20	HC▼	12
8.65	.....	.....	1.94	.....	4–3x4⅜	124	1425	L	3	2¼	G	.....	.....	Mar	Uni	.....	P	Pu	.....	SP	SG	10¼	6¼	1105	FK	3	10	4	8¼	20	HC▼	13
10.00	.....	.....	2.25	Own....S	4–3½x4	154	1550	I	3	2½	G	D	.....	Zen	Uni	Own	P	Pu	TD...SO	Ch		9¼	6¼	1078	FK	4	14	5	36	.....	HC▼	14
10.00	.....	.....	2.75	Own....S	4–3½x4	154	1550	I	3	2½	G	D	.....	Zen	Uni	Own	P	Pu	TD...SO	Ch		9¼	6¼	1078	SA	4	14	5	36	.....	HC▼	15
8.00	.....	.....	2.25	Own....S	4–3½x4	154	1550	I	3	2½	G	D	.....	Zen	Uni	Own	P	Pu	TD...SO	Ch		9¼	6¼	1078	FK	4	14	5	36	.....	HC▼	16
9.52	.....	.....	2.68	Own....S	4–3½x4	154	1550	I	3	2½	G	D	.....	Zen	Uni	Own	P	Pu	Roc...SP	Ch		9¼	6¼	1078	FK	4	14	5	36	.....	HC▼	17
10.00	.....	.....	2.66	Own....D	4–3¾x5½	259	1200	I	3	.....	G-D	.....	Own	Zen	Own	Own	P	Pu	TD...DO	Ch		10¼	6¼	973	FK	6½	17	7	36	.....	HC▼	18
10.00	.....	.....	2.75	Own....D	4–3¾x5½	259	1200	I	3	.....	G-D	.....	Own	Zen	Own	Own	P	Pu	TD...DO	Ch		11¾	6¼	846	SA	6½	17	7	42	.....	HC▼	19
10.00	.....	.....	2.50	Own....D	4–3¾x5½	259	1200	I	3	.....	G-D	.....	Own	Zen	Own	Own	P	Pu	TD...DO	Ch		10¼	6¼	973	FK	6½	17	7	36	.....	HC▼	20
11.45	.....	.....	3.38	Own....D	4–3¾x5½	259	1200	I	3	2¼	G	D	Own	Zen	Own	Own	P	Pu	Roc...SP	Ch		10¼	6¼	973	FK	5⅜	19	7	36	.....	HC▼	21
10.00	.....	.....	2.75	Own....LA	4–4⅝x6	403	1100	I	3	.....	G-D	.....	Own	Zen	Own	Own	P	Pu	TD...DO	Ch		13	8¼	779	FK	15¼	29	12	68	.....	HC▼	22
10.60	.....	.....	3.08	Own....LA	4–4⅝x6	403	1100	I	3	.....	G-D	.....	Own	Zen	Own	Own	P	Pu	TD...DO	Ch		13	8¼	779	FK	15¼	29	12	68	.....	HC▼	23
13.00	.....	.....	2.00	Herc QXB-5	6–3¼x4½	205	1575	L	7	2½	G	.....	E-A	Zen	A-M	Han	P	Pu	Lg...SP	SG		8¼	7	1180	FK	3¾	15	5	5	½	HC▼	24
13.00	.....	.....	2.00	Herc QXB-5	6–3¼x4½	205	1575	L	7	2½	G	.....	E-A	Zen	A-M	Han	P	Pu	Lg...SP	SG		8½	7	1180	SA	3¾	15	5	5	½	HC▼	25
.....	.....	.....	2.50	Wau...6ML	6–4x4¾	358	1416	L	7	2⅝	G	.....	E-A	Zen	Don	Wau	P	Pu	TD...DP	SG		16	8½	625	FK	7½	30	8	30	.....	HC▼	26
.....	.....	.....	2.69	Own....9N	4–3 3/16x3¾	120	(c)	L	3	2.248	G	.....	Own	Mar	Uni	Novi	P	Pu	Lg...SP	IG		9	6½	1360	.....	3½	10	6	20	.....	Ele	27
10.00	.....	.....	1.80	Buda HP205	4–3 3/16x4½	205	1300	L	5	3	G	K-D	Wico	Zen	Don	Han	P	Pu	Roc...SP	IG		10	7⅜	990	SA	3¼	18	5	5½	1⅓	HC	28
.....	.....	.....	1.87	Wau...VIK	4–4½x5¼	334	1200	I	3	2⅝	G	K-D	Bos	Zen	Don	Wau	P	Pu	TD...SP	SG		14	7⅜	705	SA	4	20	9	16½	2	HC	29
.....	.....	.....	1.83	Wau...CHK	4–4¾x6¼	516	1150	I	3	3	G	K-D	Bos	Zen	Don	Wau	P	Pu	TD...SP	SG		17	8½	616	FK	11	32	14	47	.....	HC	30
9.62	.....	.....	2.75	Own.....	4–3x4	113	1400	I	3	2⅛	G	D	Own	Zen	Don	Own	P	TS	Roc...SP	SG		8½	6	1157	FK	3⅜	10	5	6	1¼	HC▼	31
7.10	14.90	.....	2.90	Own.....	4–3⅜x4¼	152	1650	I	3	2½	G	K-D	Own	Own	Don	Own	P	Pu	Roc...SP	SG		9¾	7½	1019	FK	4½	17½	6	26	••	HC▼	32
7.30	14.10	.....	2.50	Own.....	4–3⅞x5¼	248	1450	I	3	2¾	G	K-D	Own	Own	Don	Own	P	Pu	Roc...SP	SG		11	7½	899	FK	6	21	8	56	••	HC▼	33
7.30	14.10	.....	2.50	Own..Diesel	4–3⅞x5¼	248	1450	I	5	3⅜	O	.....	.....	Bos	Don	Bos	P	Pu	Roc...SP	SG		11	7½	899	FK	7	21	9	56	••	HC▼	34
7.30	15.10	.....	3.00	Own.....	4–4.4x5½	334	1500	I	3	3¼	G	K-D	Own	Own	Don	Own	P	Pu	Roc...SP	SG		14	8½	707	FK	10	36	11	44	••	HC▼	35
7.30	15.10	.....	2.80	Cwn..Diesel	4–4.4x5½	334	1500	I	5	4⅛	O	.....	.....	Bos	Don	Bos	P	Pu	Roc...SP	SG		14	8½	707	FK	11	36	11	44	••	HC▼	36
9.62	.....	.....	2.75	Own.....	4–3x4	113	1400	I	3	2⅛	G	K-D	Own	Zen	Don	Own	P	TS	Roc...SP	SG		8½	6	1157	FK	3⅜	10	5	6	1½	HC▼	37
12.75	.....	.....	3.62	Own.....	4–3x4	113	1400	I	3	2⅛	G	K-D	Own	Zen	Don	Own	P	TS	Roc...SP	SG		8½	6	1157	SA	3⅜	10	5	6	1½	HC▼	38
9.62	.....	.....	2.75	Own.....	4–3x4	113	1400	I	3	2⅛	G	K-D	Own	Zen	Don	Own	P	TS	Roc...SP	SG		8½	6	1157	SA	3⅜	10	5	6	1½	HC▼	39
5.37	.....	.....	3.00	Own.....	4–3⅜x4¼	152	1650	I	3	2½	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		9¾	7½	1019	SA	4	17½	6	24	••	HC▼	40
5.12	.....	.....	3.12	Own.....	4–3⅞x5¼	248	1450	I	3	2¾	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		11	7½	899	SA	6	22	8	56	••	HC▼	41
5.12	.....	.....	3.12	Own..Diesel	4–3⅞x5¼	248	1450	I	5	3⅜	O	.....	.....	Bos	Don	Bos	P	Pu	Roc...SP	SG		11	7½	899	SA	7½	21	9	56	••	HC▼	42
5.00	.....	.....	2.75	Own.....	4–3⅜x4¼	152	1650	I	3	2½	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		9¾	7½	1019	FK	4½	17½	6	26	••	HC▼	43
4.87	14.12	.....	1.75	Own.....	4–3⅜x4¼	152	1650	I	3	2½	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		9¾	7½	1019	FK	4½	17½	6	26	••	HC▼	44
4.87	.....	.....	2.87	Own.....	4–3⅞x5¼	248	1450	I	3	2¾	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		11	7½	899	FK	6	21	8	56	••	HC▼	45
4.87	.....	.....	2.87	Own..Diesel	4–3⅞x5¼	248	1450	I	5	3⅜	O	.....	.....	Bos	Don	Bos	P	Pu	Roc...SP	SG		11	7½	899	FK	7	21	9	56	••	HC▼	46
4.87	14.37	.....	1.75	Own.....	4–3⅞x5¼	248	1450	I	3	2¾	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		11	7½	899	FK	6	21	8	56	••	HC▼	47
5.25	15.12	.....	2.75	Own.....	4–4.4x5½	334	1500	I	3	3¼	D	G-K	Own	Own	Don	Own	P	Pu	Roc...SP	SG		9¾	7½	1019	FK	11	35	11	44	••	HC▼	48
5.25	15.12	.....	2.75	Own..Diesel	4–4.4x5½	334	1500	I	5	4⅛	O	.....	.....	Bos	Don	Bos	P	Pu	Roc...SP	SG		14	8½	707	FK	11	35	11	40	••	HC▼	49
5.50	7.33	12.66	4.00	Own....A	2 5½x6¾	321	975	I	2	2¾	G-K-D	.....	Wico	Mar	Uni	Own	P	TS	Own...SP	SG		12¾	7⅜	975	FK	9¼	16	9½	32	.....	.....	50
5.50	7.33	12.50	4.00	Own....B	2–4½x5½	175	1150	I	2	2¼	G-K-D	.....	Wico	Mar	Don	Own	P	TS	Own...SP	SG		10⅝	6⅞	1150	FK	6¼	14	7	18	.....	.....	51
6.33	.....	.....	3.25	Own....G	2–6½x7	412	975	I	2	3	G-K-D	.....	Wico	Mar	Don	Own	P	TS	Own..DP	SG		12¾	8½	975	FK	11	18½	11	38	.....	.....	52
.....	.....	.....	1.75	Own....H	2–3⅝x5	100	1400	I	2	2 1/16	G-K-D	.....	Wico	Mar	Don	Own	P	TS	Own..SP	SG		12¼	4⅜	700	FK	5½	8½	4	11	.....	.....	53
.....	.....	.....	1.75	Own....D	2–6¾x7	500	900	I	2	3	G-K-D	.....	Wico	Mar	Don	Own	P	TS	Own..DP	Ch		13¼	8½	900	FK	14	25	14	28	.....	.....	54
16.00	.....	.....	2.50	Cont...F124	4–3x4⅜	124	1500	L	3	.....	G	.....	.....	Mar	Don	Pie	P	Pu	BB...SP	SG		9½	6¼	1224	FK	2¾	12	4	48	.....	Ele	55
16.00	.....	.....	2.50	Cont...F140	4–3 3/16x4⅜	140	1500	L	3	.....	D	G-K	AL	Mar	Don	Pie	P	Pu	BB...SP	SG		9½	6¼	1224	FK	2¾	12	4	48	.....	Ele	56
15.80	.....	.....	1.90	Cont.....	4–3 3/16x4⅜	140	1500	L	3	.....	G	.....	AL	Mar	Don	Pie	P	Pu	BB...SP	.....		13	6	837	FK	2¾	10	4	48	.....	Ele	57
16.10	.....	.....	3.60	Cont.....	4–3 3/16x4⅜	140	1500	L	3	.....	G	.....	AL	Mar	Don	Pie	P	Pu	BB...SP	.....		13	6	837	FK	2¾	10	4	48	.....	Ele	58
15.80	.....	.....	1.90	Cont.....	4–3 7/16x4⅜	162	1500	L	3	.....	D	G-K	AL	Mar	Uni	Pie	P	Pu	BB...SP	SG		13½	6	837	FK	4¾	10	4	48	.....	Ele	59
16.10	.....	.....	3.60	Cont.....	4–3 7/16x4⅜	162	1500	L	3	.....	D	G-K	AL	Mar	Uni	Pie	P	Pu	BB...SP	SG		13½	6	837	FK	4¾	10	4	48	.....	Ele	60
16.10	.....	.....	1.90	Chrysler....	6–3 1/4x4⅜	218	1500	L	4	.....	G	.....	AL	Mar	Uni	Novi	P	Pu	BB...SP	SG		13½	6	837	FK	4½	18	5	48	.....	Ele	61
16.96	.....	.....	2.35	Cont.....	6–3 7/16x4⅜	244	1600	L	4	.....	D	G-K	AL	Mar	Uni	Pie	P	Pu	BB...SP	SG		13½	6¼	745	FK	4¾	14	5	48	.....	Ele	62
17.35	.....	.....	2.30	Chrysler....	6–3 1/4x4⅜	218	1500	L	4	.....	G	.....	AL	Mar	Uni	Novi	P	Pu	BB...SP	SG		13½	6	837	FK	4½	18	5	48	.....	Ele	63
18.32	.....	.....	2.45	Cont.....	6–3 7/16x4⅜	244	1600	L	4	.....	D	G-K	AL	Mar	Uni	Pie	P	Pu	BB...SP	SG		13½	6¼	745	FK	4¾	18	5	48	.....	Ele	64
12.70	.....	.....	2.09	Cont.....	6–3⅝x4⅜	290	1700	L	4	.....	G	.....	AL	Mar	Uni	Pie	P	Pu	BB...SP	SG		13½	8	809	FK	4½	25	7	64	.....	Ele	65
12.70	.....	.....	2.09	Cont.....	6–4x4⅜	330	1700	L	4	.....	D	G-K	AL	Zen	Uni	Pie	P	Pu	BB...SP	SG		13½	8	809	FK	5½	25	6	64	.....	Ele	66
12.00	.....	.....	2.60	Own....EE	4–3⅝x4	165	1400	I	2	3	G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	.....		12¼	6	933	SA	3½	14	7	18	••	HC▼	67
12.00	.....	.....	2.60	Own....EE	4–3⅝x4	165	1400	I	2	3	G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	.....		12¼	6	933	FK	3½	14	7	18	••	HC▼	68
14.90	.....	.....	3.30	Own....EE	4–3⅝x4	165	1400	I	2	3	G	.....	FM	Mar	Uni	Own	P	Pu	Roc...SP	.....		12¼	6	933	FK	3½	14	7	18	••	HC▼	69
4.70	14.60	.....	1.10	Own....RE	4–3⅝x4½	186	1500	I	2	.....	G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	.....		14	7	786	SA	3½	16¾	7	28	••	HC▼	70
4.70	14.60	.....	1.10	Own....RE	4–3⅝x4½	186	1500	I	2	.....	G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	.....		14	7	786	FK	3½	16¾	7	28	••	HC▼	71
4.30	13.50	.....	1.00	Own....RE	4–3⅝x4½	186	1500	I	2	.....	G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	.....		14	7	786	FK	3½	16¾	7	28	••	HC▼	72

(For abbreviations see pages 116-117)

AMERICAN

Wheel

Line Number	TRACTOR MAKE AND MODEL	GENERAL: Wheelbase (In.)	Minimum Turning Radius—Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	TREAD (In.): Minimum	TREAD (In.): Maximum	DRAW-BAR: Lateral Adjustment (In.)	DRAW-BAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width (In.)	OVERALL DIMENSIONS: Height—To Highest Point (In.)	WHEELS: Standard Equipment	WHEELS: STEEL Diam. and Face: Front (In.)	WHEELS: STEEL Diam. and Face: Rear (In.)	WHEELS: TIRE SIZE: Front (In.)	WHEELS: TIRE SIZE: Rear (In.)	HP. RATING: Belt	HP. RATING: Drawbar	Nebraska Test Number	Power Take-off	Number of Forward Speeds	Number of Reverse Speeds	Travel Speeds at Normal Governed Engine R.P.M. (M.P.H.) with Standard Wheels: First	Second	Third
73	M-M Twin City UTS	81	12	14‡	5200	54	.....	15	15	135	72½	91½	RT	28x5	50x10	6.00/16	11.00/38	44.85	41.15	310	Op	5	1	2.52	3.26	4.43
74	M-M Twin City UTI	80	17	16‡	7200	69	.....	17	17	122	95½	74	RT	.....	.....	7.50/16	11.25/28	44.85	41.15	.....	Op	5	1	2.52	3.26	4.43
75	M-M Twin City UTU	88	8½	22½‡	5200	54	83	14⅜	15	139½	84½	91½	RT	24x5	50x10	6.00/16	11.00/38	45.27	37.76	319	Op	5	1	2.52	3.26	4.43
76	M-M Twin City GTA	84	13⅝	11½‡	6220	57½	.....	19	16	136½	72	92	RT	34x5¾	50x12	7.50/18	13.50/32	57.56	48.36	317	Op	4	1	2.70	3.80	4.80
77	M-M Twin City GTI	84	13⅝	12‡	10000	71	.....	20	13	144	84	97⅜	RT	.....	.....	7.50/18	11.25/28	57.56	48.36	.....	Op	4	1	2.80	3.90	5.90
78	Oliver-Standard 60HC	66	.....	10	1850	48	48	17	15	106	56¼	75	RT	.....	.....	4.00/15°	8.00/24°	.....	.....	.....	Op	4	1	2.50	3.50	4.50
79	Oliver-Row Crop 60HC	85½	7½	15	1900	60	72	17½	15	128	79¼	83	SW	23x4½	46x	4.00/15°	7.00/36°	16.58	13.39	375	Op	4	1	2.59	3.45	4.57
80	Oliver-Std. & Orch. 70KD	72	11½	11¾	3350	48°	48°	18	15	135½	61½	77⅜	SW	27x4½	42x10	5.50/16°	10.00/24°	23.89	15.87	284	Op	4-6‡	1	2.44	3.32	4.33
81	Oliver-Row Crop 70KD	91¼	8	17¼	3400	60	72	17½	15	137½	80½	87⅞	SW	27x4½	55x⅜	5.50/16	9.00/40°	24.49	16.53	267	Op	4-6‡	1	2.44	3.32	4.33
82	Oliver-Std. & Orch. 70HC	72	11½	11¾	3350	48°	48°	18	15	135½	61½	77⅛	SW	27x4½	42x10	5.50/16°	10.00/24°	24.95	15.89	283	Op	4-6‡	1	2.44	3.32	4.33
83	Oliver-Row Crop 70HC	91¼	8	17¼	3400	60	72	17½	15	137½	80½	83⅞	SW	24x4½	55x⅜	5.50/16	9.00/40°	25.13	16.94	252	Op	4-6‡	1	2.44	3.32	4.33
84	Oliver-Standard 80HC	72½	12½	10	4600	50	50	16⅜	15	122½	61½	74⅜	SW	28x5	44x10	6.00/16°	11.25/24°	35.00	22.00	.....	Op	4	1	2.42	3.23	4.17
85	Oliver-Row Crop 80HC	93¾	8½	17½	4800	60	72	17½	15	144	80	82	SW	24x4½	59½x⅜	6.00/16	11.25/40	35.00	23.00	.....	Op	4	1	2.52	3.35	4.33
86	Oliver-Row Crop 80KD	93¾	8½	17½	4800	60	72	17½	15	144	80	82	SW	24x4½	59½x⅜	6.00/16	11.25/40	35.14	23.27	300	Op	4	1	2.52	3.35	4.33
87	Oliver-Standard 80KD	72½	12½	10	4600	50	50	16⅜	15	122½	61½	74⅜	SW	28x5	44x10	6.00/16°	11.25/24°	35.16	22.16	301	Op	4	1	2.42	3.23	4.17
88	Oliver 90	80	14	10½	6200	52	52	23½	15	131¼	65	80¼	SW	29x6	46x12	7.50/18	12.75/28°	44.00	28.00	.....	Op	4	1	2.23	3.32	4.32
89	Oliver 99	80	14	10½	6400	52	52	23½	15	131¼	65	80¼	SW	29x6	46x12	7.50/18	12.75/28°	50.00	32.00	.....	Op	4	1	2.23	3.32	4.32
90	Silver King (4) 441C	64	9½	16	2780	43	63	26	15	110	54	76	RT	.....	.....	5.50/16	10.00/28	34.80	21.40	.....	Op	4	1	2.75	4.47	6.22
91	Silver King 242	77⅛	7	29	3180	62	90	29	15	132	78	78½	RT	.....	.....	6.50/16	10.00/28	34.80	25.50	.....	Op	4	1	2.22	3.61	5.02
92	Silver King 342	88¾	8	28	3080	62	90	29	15	139	78	78½	RT	.....	.....	7.50/16	10.00/36	34.80	25.50	.....	Op	4	1	2.61	4.23	5.88
93	Silver King 660	81	7	27	3130	66	78	27	10–19	131	75	64	RT	.....	.....	6.00/16°	10.00/24°	34.80	24.70	.....	Op	4	1	2.04	3.31	4.61
94	Silver King 340	87½	8	28	3180	56	84	27	10–19	138	80	64	RT	.....	.....	6.50/16°	9.00/36°	34.80	25.50	.....	Op	4	1	2.50	4.06	5.65

ABBREVIATIONS:

*—Rated using distillate
**—Included in transmission
†—Clearance at rear axle
‡—Clearance at front axle
‡—Optional at additional cost
■—Rated using gasoline
▼—Electric starter optional at additional cost
♦—Applies to torque tube
°—Others available
(1)—International Harvester Co.
(2)—McCormick-Deering; International Harvester Co.
(3)—Minneapolis Moline Power Implement Co.
(4)—Fate-Root-Heath Co.
(a)—Front bearing; 2 1/16, center and rear bearing, 2 1/2
AL—The Electric Auto-Lite Co.
A-M—Air Maze Corp.
(b)—Higher fourth speeds available at additional cost
BB—Borg & Beck Div.
Bos—American Bosch Corp.
(c)—1200 to 2000 R.P.M.
Ch—Chain
Cont—Continental Motors
CS—Circulating splash
(d)—Rear tread; 52-84
D—Distillate
DO—Double plate, in oil
Don—Donaldson Co., Inc.
DP—Double plate, dry
DR—Delco-Remy Div.
(e)—Rear tread
E-A—Edison Splitdorf or Auto-Lite
Ele—Electric starting
FK—Front axle knuckle

CURRENT MODELS OF

Line Number	TRACTOR MAKE AND MODEL	GENERAL: Minimum Turning Radius—Outside (Ft.) (Minimum Tread)	Ground Clearance (In.)	Shipping Weight (Lb.) Standard Shoe (Minimum Tread)	Tread: Minimum (In.)	Tread: Maximum (In.)	DRAW-BAR: Lateral Adjustment—At Pin (In.)	DRAW-BAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width—Maximum (In.) (Minimum Tread)	OVERALL DIMENSIONS: Height to Highest Point (In.)	TRACK: Width or Shoe—Standard (In.)	TRACK: Length on Ground (In.)	HP. RATING: Belt	HP. RATING: Drawbar	Power Take-off	No. of Forward Speeds	No. of Reverse Speeds	MAXIMUM DRAWBAR PULL AT NORMAL GOVERNED ENGINE R.P.M.: First Gear (Lb.)	Second Gear (Lb.)	Third Gear (Lb.)	Fourth Gear (Lb.)	Fifth Gear (Lb.)	Sixth Gear (Lb.)	Travel Speeds at Normal Governed Engine R.P.M.: First Gear (M.P.H.)	Second Gear (M.P.H.)	Third Gear (M.P.H.)	Fourth Gear (M.P.H.)
1	Allis-Chalmers M	6	8⅞	6810	40	50	23	91½	101⅜	57¼	56⅓	12	56 5/16	39.54	32.77	Op	4	1	5899	5465	3436	2428	.....	.....	1.83	2.23	3.20	4.15
2	Allis-Chalmers K	7	11	11740	48	63	19½	11⅛	124	65⅞	67 1/16	15	67	63.96	54.99	Op	5	1	11785	7727	6165	2815	.....	.....	1.72	2.59	3.26	5.92
3	Allis-Chalmers S	8¼	15½	19310	62	74	32	14⅛	146	84⅝	74 1/16	18	77 3/32	85.77	70.44	Op	5	1	17843	11367	7900	5152	3245	.....	1.52	2.32	3.25	4.55
4	Allis-Chalmers L	9	16¾	23600	68	68	35	15½	153¼	93	81¼	20	85 1/16	110.15	91.53	Op	6	2	23851	18410	12919	9770	6448	4520	1.48	1.94	2.68	3.50
5	Allis-Chalmers HD14	9½	13½	28780	68	68	30	15½	165	91¾	80	22	85 1/16	150.48	132.19	Op	6	2	28019	22699	17265	13769	10074	5579	1.72	2.18	2.76	3.50
6	Allis-Chalmers HD10	8⅔	11⅝	20290	62	74	32	14⅝	150	82¼	77¾	18	77 3/32	101.62	86.63	Op	6	2	19002	15509	11421	7867	6190	4157	1.69	2.06	2.68	3.78
7	Allis-Chalmers HD7	7⅛	10⅜	13130	52	63	19½	10¾	128	70	69⅛	16	67	71.08	60.10	Op	4	1	12171	8570	6167	3311	.....	.....	1.84	2.55	3.45	5.82
8	Caterpillar R2	5¾	9	6470°	40	50	20⅜	12	110	55¾	57 11/16	12	54½	31.07	25.06	Op	5	1	5676	3544	2891	2401	1506	.....	1.70	2.50	3.00	3.60
9	Caterpillar R4	6 7/12	11⅛	9710°	44	60	21	13⅞	129	62	60⅝	13	61⅛	40.83	35.33	Op	5	1	7211	5186	4105	3147	2045	.....	1.70	2.40	3.00	3.70
10	Caterpillar Diesel D2	5 7/12	9	6880°	40	50	20⅜	12	107	55¾	57 11/16	12	54½	31.99	25.86	Op	5	1	5903	3798	3069	2485	1585	.....	1.70	2.50	3.00	3.60
11	Caterpillar Diesel D4	6½	11¼	10240°	44	60	21	13⅞	121 9/16	62	60⅝	13	61⅛	41.17	35.68	Op	5	1	7852	5811	4541	3471	2230	.....	1.70	2.40	3.00	3.70
12	Caterpillar Diesel D6	8½	12¼	16990°	60	74	27¼	14	149 3/16	80¼	72½	16	85⅝	65.00	55.00	Op	5	4	14300	9100	6200	4000	2650	.....	1.40	2.30	3.20	4.40
13	Caterpillar Diesel D7	8 11/12	15½	23970	.....	74	35	17½	162¼	98	80	20	93¼	92.84	80.44	Op	5	4	21351	13454	9090	5994	4550	.....	1.40	2.20	3.20	4.60
14	Caterpillar Diesel D8	9 5/12	10½	34170	.....	78	43	17½	183	113¾	90	22	97⅜	131.00	113.10	Op	6	2	26208	19537	15973	13707	11266	7995	1.60	2.20	2.60	3.00
15	Cletrac (1) HG	5¼	20½	3100	31	68	19	10	102	41	48	6	50	22.00	18.00	Op	3	1	3060	2170	1080	.....	.....	.....	2.02	3.19	5.25	.....
16	Cletrac AG	7	13½	6675	42	.....	15	14½	109	57	55	12	62	34.20	27.00	Op	3	1	5700	3940	2500	.....	.....	.....	1.78	2.61	3.74	.....
17	Cletrac BG	7¼	15	8400	44	52	15	17	116	60	69	14	63	50.00	38.00	Op	4	2	7600	5700	4200	2000	.....	.....	1.80	2.64	3.46	5.40
18	Cletrac CG	7	15	11250	48	61	15	17	120	67	70	15	74	55.39	48.40	Op	3	1	9920	5630	3250	.....	.....	.....	1.87	3.06	4.45	.....
19	Cletrac DG	8	15	12500	48	61	15	16	125	68½	80	16	75	69.00	61.20	Op	4	2	11000	9350	7000	4156	.....	.....	1.84	2.50	3.30	5.30
20	Cletrac FG	5	19	27400	69	.....	25	25	180	100	97	20	96	110.90	94.00	Op	4	2	22500	12670	8900	5440	.....	.....	1.61	2.75	3.66	5.00
21	Cletrac Diesel AD	7	13½	7500	42	50	15	14	109	57	60	12	62	38.00	30.50	Op	3	1	6500	4520	2800	.....	.....	.....	1.80	2.60	3.70	.....
22	Cletrac Diesel BD	7¼	15	8900	44	52	15	17	116	60	73	14	63	48.09	38.05	Op	4	2	8012	5586	4127	2000	.....	.....	1.80	2.64	3.46	5.40
23	Cletrac Diesel DD	8	15	13300	48	61	15	16	125	68½	80	16	75	67.71	61.19	Op	4	2	11800	10020	7600	4560	.....	.....	1.70	2.30	3.10	4.90
24	Cletrac Diesal FD	5	19	28500	69	.....	25	25	180	100	106	20	96	113.60	96.90	Op	4	2	23160	13156	9150	5800	.....	.....	1.61	2.75	3.68	5.00
25	I.H.C. (2) TracTracTor T-6	5⅓	8¾	6700	40	50	19⅜	12¼	104	53	72¼	12	58⅝	38.96	32.92	Op	5	1	7652	5215	3579	2767	1756	.....	1.50	2.20	3.10	3.80
26	I.H.C. TracTracTor TD-6	5⅓	8¾	6900	40	50	19⅜	12¼	104	53	72¼	12	58⅝	36.23	29.49	Op	5	1	7160	4929	3368	2641	1661	.....	1.50	2.20	3.10	3.80
27	I.H.C. TracTracTor T-9	6	10⅛	9300	44	60	19½	13¾	114	58⅞	65⅞	13	63⅛	48.69	42.98	Op	5	1	9868	6904	4556	3650	2434	.....	1.50	2.20	3.00	3.90
28	I.H.C. TracTracTor TD-9	6	10½	9500	44	60	19½	13¾	114	58⅞	79	13	63⅞	45.91	38.88	Op	5	1	9014	6637	4368	3551	2304	.....	1.50	2.20	3.03	3.90
29	I.H.C. TracTracTor T-14	7½	11¾	15450	56	74	27	13¾	134⅛	74	73¾	16	78⅝	64.00	54.00	Op	6	2	13100	9300	7600	5400	3550	2700	1.50	2.10	2.50	3.40
30	I.H.C. TracTracTor TD-14	7½	11¾	15400	56	74	27	13⅜	134⅛	74	84⅜	16	78⅝	64.02	54.04	Op	6	2	13425	9645	7919	5683	3824	2925	1.50	2.10	2.50	3.40
31	I.H.C. TracTracTor TD-18	8 1/12	14¼	21750	62	74	31	15½	158¼	82	89⅞	18	84⅝	84.66	70.59	Op	6	2	18973	13357	10561	7827	5157	3833	1.50	2.00	2.50	3.30

ABBREVIATIONS

*—Two used
▼—Electric starter optional
°—Weight for wide tread model
(1)—Cleveland Tractor Co.
(2)—International Harvester Co.
(a)—or 444 R.P.M.
(b)—Or 650 R.P.M.
Atw—Atwood
Clu—Clutches
D—Distillate
Dif—Differential
Bos—Bosch
Don—Donaldson
DP—Double Plate, Dry
DR—Delco-Remy
Eis—Eismann
Ele—Electric
FM—Fairbanks Morse Co.
G—Gasoline
GE—Independent Gas Engine

TRACTORS (*Continued*)

Type (*Continued*)

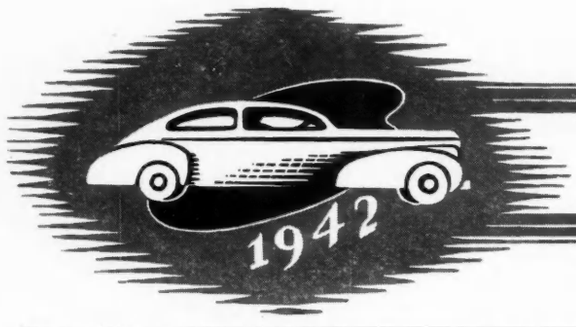
Travel Speeds at Normal Governed Engine R.P.M. (M.P.H.) with Standard Wheels				ENGINE								FUEL												BELT PULLEY				CAPACITIES							
Fourth	Fifth	Sixth	Reverse	Make and Model	Number of Cylinders—Bore and Stroke (In.)	Piston Displacement (Cu. In.)	R.P.M. at Governed Speed	Valve Arrangement	Number of Main Bearings	Diameter of Main Bearings		Standard	Optional	Ignition—Make	Carburetor or Injector Pump—Make	Air Cleaner—Make	Governor—Make	Oiling System—Type	Cooling System—Type	Clutch—Make and Type		Final Drive-Type		Diameter (In.)	Face (In.)	Normal R.P.M.	Steering Type	Cooling System (Gal.)	Fuel Tank (Gal.)	Crankcase (Qts.)	Transmission (Qts.)	Final Drive Case (Qts.)	Starting Method	Line Number
5.80	18.97	....	1.20	Own...KEF	4-4¼x5	284	1275	I	3	2⅜		G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	....			15½	7	727	FK	6	21½	9	52	**	HC▾	73
5.80	18.97	....	1.10	Own...KEF	4-4¼x5	284	1275	I	3	2⅜		G	D	FM	Mar	Uni	Own	P	Pu	Roc...SP	....			15½	7	727	FK	6	21½	9	52	**	HC▾	74
5.80	18.97	....	1.20	Own...KEF	4-4¼x5	284	1275	I	3	2⅜		G	D	FM	Mar	Uni	Own	P	Pu	TD...SP	....			15½	7	727	SA	6	21½	9	52	**	HC▾	75
9.60	....	....	2.80	Own...GE	4-4⅝x6	403	1075	I	3	2⅞		G	D	FM	Mar	Don	Own	P	Pu	TD...SP	....			16	7½	650	FK	7	30	10	52	**	HC▾	76
9.90	....	....	2.90	Own...GE	4-4⅝x6	403	1075	I	3	2⅞		G	D	FM	Mar	Don	Own	P	Pu	TD...SP	....			16	7½	750	FK	7	30	10	52	**	HC▾	77
6.00	....	....	3.25	Own....	4-3 1/16x3½	121	1500	I	3	2¼		G	....	Wico	Mar	Don	Own	CS	Pu	BB...SP	SG	10	6¼	647	FK	2½	10	4	24	**	HC▾	78
6.10	....	....	3.32	Own....	4-3 1/16x3½	121	1500	I	3	2¼		G	....	Wico	Mar	Don	Own	CS	Pu	BB...SP	SG	10	6¼	647	SA	2½	10	4	24	**	HC▾	79
5.88	7.25	12.8	2.44	Own....	6-3 1/16x4 3/8	201	1500	I	4	2¼		D	G	Bos	Zen	Don	Own	P	Pu	BB...SP	SG	12⅜	7¼	774	FK	4½	15	5	26	**	HC▾	80
5.88	7.25	12.8	2.44	Own....	6-3 1/16x4 3/8	201	1500	I	4	2¼		D	G	Bos	Zen	Don	Own	P	Pu	BB...SP	SG	12⅜	7¼	774	SA	4½	15	5	26	**	HC▾	81
5.88	7.25	12.8	2.44	Own....	6-3 1/16x4 3/8	201	1500	I	4	2¼		G	....	Bos	Zen	Don	Own	P	Pu	BB...SP	SG	12⅜	7¼	774	FK	4½	15	5	26	**	HC▾	82
5.88	7.25	12.8	2.44	Own....	6-3 1/16x4 3/8	201	1500	I	4	2¼		G	....	Bos	Zen	Don	Own	P	Pu	BB...SP	SG	12⅜	7¼	774	SA	4½	15	5	26	**	HC▾	83
5.60	(b)	....	2.96	Own....	4-4¼x5 1/4	298	1200	I	3	2⅝		G	....	Bos	Mar	Don	Own	P	Pu	BB...SP	SG	14½	7¼	731	FK	8½	17	8	48	**	HC▾	84
5.82	(b)	....	3.08	Own....	4-4¼x5 1/4	298	1200	I	3	2⅝		G	....	Bos	Mar	Don	Own	P	Pu	BB...SP	SG	14½	7¼	731	SA	8½	17	8	48	**	HC	85
5.82	(b)	....	3.08	Own....	4-4½x5 1/4	334	1200	I	3	2⅝		D	G	Bos	Mar	Don	Own	P	Pu	BB...SP	SG	14½	7¼	731	SA	8½	17	8	48	**	HC	86
5.60	(b)	....	2.96	Own....	4-4½x5 1/4	334	1200	I	3	2⅝		D	G	Bos	Mar	Don	Own	P	Pu	BB...SP	SG	14½	7¼	731	FK	8½	17	8	48	**	HC▾	87
5.55	(b)	....	3.23	Own....	4-4⅝x6 1/4	443	1125	I	3	3		D	G	Bos	Mar	Don	Own	P	Pu	BB...SP	SG	16⅜	8¼	596	FK	10½	34	12	48	**	HC▾	88
5.55	(b)	....	3.23	Own....	4-4⅝x6 1/4	443	1125	I	3	3		D	G	Bos	Mar	Don	Own	P	Pu	BB...SP	SG	16⅜	8¼	596	FK	10½	34	12	48	**	HC▾	89
20.00	....	....	2.06	Own....	41 4-3 7/16x4 3/8	162	1500	L	3	2		G	....	DR	Mar	Don	Pie	P	Pu	BB...SP	SG	8	6½	1800	FK	3	10	5	8	¾	Ele	90
16.17	....	....	1.67	Own....	42 4-3 7/16x4 3/8	162	1500	L	3	2		G	....	DR	Mar	Don	Pie	P	Pu	BB...SP	SG	8	8	1800	SA	3	12	5	4	¾	Ele	91
19.00	....	....	1.96	Own....	42 4-3 7/16x4 3/8	162	1500	L	3	2		G	....	DR	Mar	Don	Pie	P	Pu	BB...SP	SG	8	8	1800	SA	3	12	5	4	¾	Ele	92
15.25	....	....	1.53	Own....	41 4-3 7/16x4 3/8	162	1500	L	3	2¼		G	....	W-F	Mar	Don	Pie	P	Pu	BB...SP	SG	8	6½	1800	SA	3	12	4	8	¾	HC▾	93
18.25	....	....	1.88	Own....	41 4-3 7/16x4 3/8	162	1500	L	3	2¼		G	....	W-F	Mar	Don	Pie	P	Pu	BB...SP	SG	8	6½	1800	SA	3	12	4	8	¾	HC▾	94

FM—Fairbanks Morse
G—Gasoline
Han—Handy Governor Corp.
HC—Hand crank
Herc—Hercules Motors Corp.
I—In head (Valves)
IG—Internal gears
K—Kerosene
L—"L" head (Valves)
Lg—Long Mfg. Co.
Mar—Marvel-Schebler Carb. Div.
N—No or none
O—Diesel fuel
Op—Optional
P—Pressure
Pie—Pierce Governor Co.
Pu—Pump
Roc—Rockford Drilling Machine Div.
RS—Rubber tires or steel wheels
RT—Rubber tires
SA—Solid axle
SG—Spur gear
SO—Single plate, in oil
SP—Single plate, dry
SW—Steel wheels
TD—Twin Disc Clutch Co.
TS—Thermo-Syphon
Uni—United Air Cleaner Div.
VCS—Vertical central spindle
Vor—Vortex Mfg. Co.
W-F—Wico or Fairbanks-Morse
Wau—Waukesha Motor Co.
Y—Yes
Zen—Zenith Carburetor Div.

TRACK LAYING TYPE

Travel Speeds at Normal Governed Engine R.P.M.				ENGINE										FUEL											BELT PULLEY				CAPACITIES							
Fifth Gear (M.P.H.)	Sixth Gear (M.P.H.)	Low Reverse (M.P.H.)	High Reverse (M.P.H.)	Make and Model	Cycle	No. of Cylinders—Bore and Stroke (In.)	Displacement (Cu. In.)	R.P.M. at Governed Speed	S.A.E. or Tax Hp.	Valve Arrangement	No. of Main Bearings	Diam. Main Bearings (In.)		Standard	Optional	Ignition—Make	Carburetor or Injector Pump—Make	Air Cleaner—Make	Governor—Make	Oiling System—Type	Cooling System—Type	Clutch—Make and Type		Drive Type to Traction Members		Diameter (In.)	Face (In.)	Normal R.P.M.	Steering Type	Cooling System (Gal.)	Fuel Tank (Gal.)	Crankcase (Qts.)	Transmission (Qts.)	Final Drive Case (Qts.) (Each Case)	Starting Method	Line Number
....	....	2.55	....	Own....M	4	4-4½x5	318	1200	32.4	I	3	2½		G	K-D	FM	Zen	Don	Own	P	Pu	Roc...SP	SG			12	8¾	960	Clu	6	24	10	12	5	HC	1
....	....	2.10	....	Own....K	4	4-5x6½	510	1050	40.0	I	3	3		G	....	FM	Zen	Vor	Own	P	Pu	Own...SP	SG			12	8¾	1050	Clu	11½	39	14	22	7	HC	2
6.37	....	1.76	....	Own....S	4	4-5 3/16x6½	675	1050	52.9	I	3	3	5/16	G	....	DR	Zen	Un	Pie	P	Pu	Roc...SP	SG			13⅜	10	770	Clu	12½	64	20	23	8	Ele	3
4.90	6.41	1.72	2.25	Own....L	4	6-5 1/16x6½	844	1050	66.1	I	4	3		G	....	FM	Zen*	Vor	Own	P	Pu	Own	DPSG			20	15	580 (a)	Clu	19	75	24	40	8	HC	4
4.36	7.00	2.00	3.20	GM....6-71	2	6-4½x5	425	1500	43.4	I	7	3	1½	O	....	....	GM	Un	GM	P	Pu	Roc...SP	SG			20	15	406 (b)	Clu	12	68	14	40	8	Ele	5
4.62	6.03	1.86	4.17	GM....4-71	2	4-4½x5	284	1600	28.9	I	5	3	1½	O	....	....	GM	Un	GM	P	Pu	Roc...SP	SG			13⅜	10	....	Clu	9¾	44	13	24	8	Ele	6
....	....	....	2.19	GM....3-71	2	3-4½x5	213	1500	21.7	I	4	3	1½	O	....	....	GM	Un	GM	P	Pu	Atw...SP	SG			12	8¾	1031	Clu	8¾	31	8½	21	7	Ele	7
5.10	....	2.10	....	Own....R2	4	4-3¾x5	221	1525	22.5	I	5	2	3/4	G	D	Eis	Zen	Don	Own	P	Pu	Own...SPSG				12	7½	835	Clu	7	20	12	10	4½	HC▾	8
5.40	....	1.90	....	Own....R4	4	4-4¼x5½	312	1400	28.9	I	5	3		G	D	Eis	Zen	Don	Own	P	Pu	Own...SPSG				12	8½	840	Clu	11	32	14	20	7	HC▾	9
5.10	....	2.10	....	Own....D2	4	4-3¾x5	221	1525	22.5	I	5	2	3/4	O	....	N	Own	Don	Own	P	Pu	Own...SPSG				12	7½	835	Clu	7¾	20	13	10	4½	GE	10
5.40	....	1.90	....	Own....D4	4	4-4¼x5½	312	1400	28.9	I	5	3		O	....	N	Own	Don	Own	P	Pu	Own...SPSG				12	8½	840	Clu	11	25	16	20	7	GE	11
5.80	....	1.80	5.40	Own....D6	4	6-4¼x5½	468	1400	43.3	I	7	3		O	....	N	Own	Don	Own	P	Pu	Own...SPSG				13⅜	12½	954	Clu	12¼	48	19	38	12	GE	12
6.00	....	1.60	5.40	Own....D7	4	4-5⅜x8	831	1000	52.9	I	5	3	3/4	O	....	N	Own	Don	Own	P	Pu	Own...SPSG				17⅝	15	692	Clu	18	65	22	40	24	GE	13
3.60	4.90	1.60	2.60	Own....D8	4	6-5⅜x8	1246	950	79.3	I	7	3	3/4	O	....	N	Own	Don	Own	P	Pu	Own...SPSG				14	15	805	Clu	28	69	29	40	26	GE	14
....	....	2.35	....	Herc....IXK	4	4-3½x4	123	1700	15.6	L	3	2		G	K	Wi	Til	Vor	Herc	P	TS	Lg...SPSG				8½	6½	1035	Dif	2¾	12	5	8	....	HC▾	15
....	....	....	....	Herc....OOC	4	4-4x4½	226	1530	25.6	L	3	2		G	K	Wi	Til	Vor	Herc	P	Pu	Lg...DPSG				12	8½	1130	Dif	4	18	5	6	....	HC▾	16
....	....	1.80	3.40	Herc....JXD	4	6-4x4¼	320	1530	38.4	L	7	2	1½	G	K	DR	Til	Vor	Herc	P	Pu	Lg...DPSG				12	8½	1145	Dif	6	23	6	9	....	Ele	17
....	....	2.29	....	Herc....WXC-3	4	6-4¼x4½	383	1565	43.3	L	7	2 5/8		G	K	DR	Til	Vor	Herc	P	Pu	Lg...DPSG				13	11	1015	Dif	5½	30	8	13	....	Ele	18
....	....	2.20	3.90	Herc....RXC	4	6-4⅝x5¼	529	1300	51.3	L	7	3		G	K	DR	Til	Vor	Herc	P	Pu	Lg...DPSG				13	11	960	Dif	10¼	30	12	13	....	Ele	19
....	....	1.58	2.82	Herc....HXE	4	6-5⅜x6	935	1120	79.4	L	7			G	....	Bos	Til	Vor	Herc	P	Pu	Lg...DPSG				24½	15	510	Dif	14	27	20	36	....	Ele	20
....	....	1.36	....	Herc....DOOC	4	4-4x4½	225	1530	25.6	L	5	3		O	....	N	Bos	Vor	Tim	P	Pu	Lg...DPSG				10½	8½	1130	Dif	5½	18	14	8	....	Ele	21
....	....	....	....	Herc....DJXC	4	6-3¾x4½	298	1400	33.7	L	7	3		O	....	N	Bos	Vor	Tim	P	Pu	Lg...DPSG				12	8½	1050	Dif	5	23	12	9	....	Ele	22
....	....	2.00	3.65	Herc....DRX	4	6-4⅜x5¼	474	1200	45.9	L	7	3	1½	O	....	N	Tim	Vor	Tim	P	Pu	Lg...DPSG				13	11	884	Dif	10½	30	16	13	....	Ele	23
....	....	1.58	2.82	Herc....DHX	4	6-5x6	707	1300	60.0	L	7	3	3/4	O	....	N	Bos	Vor	Tim	P	Pu	Lg...DPSG				24½	15	535	Dif	14	29	24	36	....	Ele	24
5.40	....	1.70	....	Own....	4	4-3 7/16x5¼	248	1450	24.0	I	5	2	3/4	G-D	....	Own	Own	Don	Own	P	Pu	Roc...SPSG				12¼	8	811	Clu	9½	20	9	16	1	HC▾	25
5.40	....	1.70	....	Own....	4	4-3 7/16x5¼	248	1450	24.0	I	5	3	3/4	O	....	N	Bos	Don	Bos	P	Pu	Roc...SPSG				12¼	8	811	Clu	10½	20	9	16	1	HC▾	26
5.30	....	1.70	....	Own....	4	4-4.4x5½	334	1400	31.0	I	3	3	1¼	D	G	Own	Own	Don	Own	P	Pu	Roc...SPSG				11⅛	9	878	Clu	12	31	11	20	1½	HC▾	27
5.30	....	1.70	....	Own....	4	4-4 4x5½	334	1400	31.0	I	5	4	1½	O	....	N	Bos	Don	Bos	P	Pu	Roc...SPSG				11⅛	9	878	Clu	13	31	11	20	1½	HC▾	28
4.80	5.80	1.50	3.40	Own....	4	4-4⅜x6½	461	1350	36.1	I	5	3	1¼	G	....	Own	Zen	Don	Own	P	Pu	Roc...SPSG				12¼	11	844	Clu	20	45	16	26	2½	HC▾	29
4.80	5.80	1.50	3.40	Own....	4	4-4⅜x6½	461	1350	36.1	I	5	3	1¼	O	....	N	Bos	Don	Bos	P	Pu	Roc...SPSG				12¼	11	812	Clu	20	45	16	26	2½	HC▾	30
4.60	5.70	1.50	3.30	Own....	4	6-4⅜x6½	691	1200	54.1	I	7	3	1½	O	....	N	Bos	Don	Bos	P	Pu	Roc...SPSG				13¼	12⅛	750	Clu	27	60	22	30	5	Ele	31

GM—General Motors
Herc—Hercules
HC—Hand Crank
I—In head (Valves)
K—Kerosene
L—"L" Head (Valves)
Lg—Long Mfg., Div.
N—No or none
O—Diesel Fuel
Op—Optional
P—Pressure
Pie—Pierce Governor
Pu—Pump
Roc—Rockford
SG—Spur Gear
SP—Single Plate, Dry
St—Standard
Til—Tillotson
Tim—Timken
TS—Thermo-Syphon
Un—United
Vor—Vortox
Wi—Wico
Zen—Zenith



AMERICAN

Line Number	PASSENGER CAR MAKE AND MODEL	Wheelbase (In.)	Overall Length (In.)	Tread (In.) Front	Tread (In.) Rear	Tire Size (In.)	Shipping Weight (Lb.) Lowest Delivered Price 5-pass., 4-door Sedan	Lowest Delivered Price—5-pass., 4-door Sedan	ENGINE: No. of Cylinders, Bore and Stroke (In.)	Taxable Hp.	Piston Displacement (Cu. In.)	Maximum Brake Hp. at Specified R.P.M.	Maximum Torque (Lb. Ft.) at Specified R.P.M.	Comp'n Ratio (to 1) Standard	Comp'n Ratio (to 1) Optional	Cylinder Head Material	Comp'n Pressure (Lb.) Pressure	Comp'n Pressure (Lb.) At What R.P.M.	Weight per Cu. In. 5-pass., 4-door Sedan§	Weight per Hp. 5-pass., 4-door Sedan§	Hp. per Cu. In.	Performance Factor††	Crankshaft Revolutions per Mile†
1	Buick-Special....42-40A	118	201 13/16	59 1/8	62 3/16	6.50/15	3650	1171	8-3 3/32x4 1/8	30.6	248.0	110-3400	200-2000	6.00	6.30	CI	112	CS	16.73	37.73	.44	34.5	2985
2	Buick-Ex.-Spec....42-40B	121	207 1/2	58 7/8	61 11/16	6.50/16	3760	1213	8-3 3/32x4 1/8	30.6	248.0	110-3400	200-2000	6.00	6.30	CI	112	CS	17.18	38.73	.44	36.1	3203
3	Buick-Super....42-50	124	212 3/8	58 7/8	61 11/16	6.50/16	3890	1391	8-3 3/32x4 1/8	30.6	248.0	118-3600	206-2000	6.30	....	CI	115	CS	17.70	37.20	.48	35.0	3203
4	Buick-Century....42-60	126	212 1/4	59 1/8	62 3/16	7.00/15	4065	1465	8-3 7/32x4 1/4	37.8	320.2	165-3800	278-2200	6.70	....	CI	115	CS	14.26	27.67	.51	38.6	2843
5	Buick-Roadmaster....42-70	129	217 1/16	59 1/8	62 3/16	7.00/15	4150	1601	8-3 7/32x4 1/4	37.8	320.2	165-3800	278-2200	6.70	....	CI	115	CS	14.52	28.18	.51	39.8	2989
6	Buick-Limited....42-90	139	226 1/4	58 23/32	63 1/16	7.50/16	4665	2628	8-3 7/32x4 1/4	37.8	320.2	165-3800	278-2200	6.70	....	CI	115	CS	16.13	31.30	.51	36.3	3094
7	Cadillac....61,62,63,60S	(a)	(b)	59	63	7.00/15	4115	1647	8-3 1/2x4 1/2	39.2	346.0	150-3400	283-1700	7.25	6.25	CI	182	1000	13.34	30.77	.43	39.9	2748
8	Cadillac....67, 75	139–136	(c)	58 1/2	62 1/2	7.50/16	4605	2896	8-3 1/2x4 1/2	39.2	346.0	150-3400	283-1700	7.25	6.25	CI	182	1000	14.75	34.03	.43	38.0	2904
9	Chevrolet....BG, BH	116	195 7/8	57 5/8	60	6.00/16	3110	907	6-3 1/2x3 3/4	29.4	216.5	90-3300	174-1200	6.50	No	CI	....	....	16.67	40.13	.42	35.6	3066
10	Chrysler-Roy. & Win....C-34	121 1/2	207 3/4	57	60 3/32	6.25/16	3500	1177	6-3 7/16x4 1/2	28.3	250.6	120-3800	200-1600	6.60	....	CI	125	CS	15.96	33.33	.48	34.9	2878
11	Chrysler-Sara. & N.Y....C-36	127 1/2	213 3/8	57 13/16	61 1/16	7.00/15	3900	1405	8-3 1/4x4 7/8	33.8	323.5	140-3600	260-1800	6.80	....	CI	125	CS	13.60	31.43	.43	40.6	2850
12	Chrysler-Crown Imp....C-37	145 1/2	231 3/8	57 13/16	61 7/16	7.50/15	....	....	8-3 1/4x4 7/8	33.8	323.5	140-3600	260-1800	6.80	....	CI	125	CS	....	....	.43	....	2570
13	Crosley....	80	120	40	40	4.25/12	1050	500	2-3x2 1/2	7.2	35.3	12-3800	20-2800	5.60	No	CI	80	240	43.91	129.17	.34	....	5191
14	De Soto-DeLuxe & Cust...S-10	121 1/2	207 1/2	57	60 3/32	6.25/16	3315	1103	6-3 7/16x4 1/4	28.3	236.6	115-3800	190-1600	6.60	....	CI	125	CS	16.12	33.17	.49	34.5	2878
15	Dodge-DeLuxe & Cust....D-22	119 1/2	201 1/2	57	60 3/32	6.00/16	3195	998	6-3 1/4x4 5/8	25.3	230.2	105-3600	185-1600	6.70	....	CI	125	CS	16.05	35.19	.46	36.8	3059
16	Ford-Six....26A	114	194 11/32	58	60	6.00/16	3033	850	6-3.30x4.40	26.1	226.0	90-3300	180-1200	6.70	....	CI	165	2000	15.63	39.25	.40	34.8	2820
17	Ford-V8....21A	114	194 11/32	58	60	6.00/16	3053	860	8-3.06x3.75	30.0	221.0	90-3800	156-2200	6.20	....	CI	100	CS	16.06	39.48	.41	33.9	2820
18	Hudson-Six & DeL. 6....20	116	(d)	56 5/16	59 1/2	(m)	2940	973	6-3x4 1/8	21.6	175.0	92-4000	138-1400	7.25	....	CI	125	CS	19.66	37.39	.53	34.4	3508
19	Hudson-Super. & Com. 6..21-22	121	207 3/8	56 5/16	59 1/2	(n)	3080	1162	6-3x5	21.6	212.0	102-4000	168-1200	6.50	....	CI	120	CS	16.89	35.10	.48	35.1	3066
20	Hudson-Com. & Cust. 8..24-25	121	207 3/8	56 5/16	59 1/2	(o)	3280	1291	8-3x4 1/2	28.8	254.0	128-4200	198-1600	6.50	....	CI	119	CS	14.88	29.53	.50	39.4	3033
21	Hudson-Com. Cust. 8....27	128	214 3/8	56 5/16	59 1/2	6.50/15	3395	1510	8-3x4 1/2	28.8	254.0	128-4200	198-1600	6.50	....	CI	119	CS	15.33	30.43	.50	37.8	2992
22	Lincoln-Zephyr & Continental..	125	217	59	60	7.00/15	3980	1700	12-2.93x3.75	41.4	306.0	130-3800	.....	7.00	No	CI	....	....	14.63	34.46	.42	40.7	3076
23	Lincoln-Custom....	138	230	59	60	7.00/15	4380	2950	12-2.93x3.75	41.4	306.0	130-3800	.....	7.00	No	CI	....	....	15.95	37.54	.42	37.3	3076
24	Mercury....29A	118	204.6	58	60	6.50/15	3263	1065	8-3.18x3.75	32.5	239.0	100-3800	176-2100	6.40	No	CI	100	CS	15.74	37.63	.42	31.7	2577
25	Nash-Amb. 600....4240	112	196 1/2	56	59 3/4	5.50/16	2655	993	6-3 1/8x3 3/4	23.4	172.6	75-3600	138-1200	6.87	....	CI	120	350	18.28	42.07	.43	33.4	3169
26	Nash-Amb. 6....4260	121	205 1/2	57 1/2	60 1/2	6.25/16	3335	1159	6-3 3/8x4 3/8	27.3	234.8	105-3400	203-1600	6.50	....	CI	125	350	16.33	36.52	.45	35.9	3033
27	Nash-Amb. 8....4280	121	205 1/2	57	61 1/4	6.50/16	3485	1209	8-3 1/8x4 1/4	31.2	260.8	115-3400	200-1600	6.60	....	CI	110	350	15.28	34.65	.44	37.9	2992
28	Oldsmobile-Special 6....66	119	204	58	61 1/2	6.00/16	3315	1088	6-3 1/8x4 1/8	29.4	238.1	100-3400	190-1400	6.50	....	CI	102	CS	16.02	38.15	.42	37.0	3066
29	Oldsmobile-Dynamic 6....76	125	212	58	61 1/2	6.50/15	3465	1153	6-3 1/8x4 1/8	29.4	238.1	100-3400	190-1400	6.50	....	CI	102	CS	16.65	39.65	.42	36.4	3130
30	Oldsmobile-Special 8....68	119	204	58	61 1/2	6.50/15	3455	1130	8-3 1/4x3 7/8	33.8	257.1	110-3600	200-2000	6.50	No	CI	105	CS	15.38	35.95	.43	35.7	2839
31	Oldsmobile-Dynamic 8....78	125	212	58	61 1/2	6.50/16	3580	1196	8-3 1/4x3 7/8	33.8	257.1	110-3600	200-2000	6.50	No	CI	105	CS	15.87	37.09	.43	38.1	3130
32	Oldsmobile-Custom 8....98	127	216	58	61 1/2	7.00/15	.....	1376	8-3 1/4x3 7/8	33.8	257.1	110-3600	200-2000	6.50	No	CI	105	CS	.....	.....	.43	....	3135
33	Packard-Six....2000-10-20	120–122	(e)	59 1/4	60 1/8	6.50/15	3435	1286	6-3 1/8x4 1/4	29.4	245.0	105-3600	192-2000	6.71	....	CI	....	....	16.06	37.48	.43	37.7	3130
34	Packard-Eight....2001-11-21	120–127	(f)	59 1/4	(i)	(p)	3560	1341	8-3 1/4x4 1/4	33.8	282.0	125-3600	230-2000	6.85	....	CI	....	....	14.40	32.48	.44	40.1	2985
35	Packard-Super 8...2003-4-5-23	127–38–48	(g)	59 5/8	(k)	(r)	4005	1739	8-3 1/8x4 5/8	39.2	356.0	165-3600	292-2000	6.85	....	CI	....	....	12.65	27.30	.46	43.7	2858
36	Packard-Cust. Sup. 8..2006-7-8	127–38–48	(h)	59 5/8	(k)	(r)	4030	2271	8-3 1/2x4 5/8	39.2	356.0	165-3600	292-2000	6.85	....	CI	....	....	12.72	27.45	.46	43.5	2858
37	Plymouth-DeL & Sp. DeL...P-14	117	195 5/16	57	59 1/16	6.00/16	3025	889	6-3 1/4x4 3/8	25.3	217.8	95-3400	172-1600	6.80	....	CI	125	CS	16.18	37.10	.44	34.7	2909
38	Pontiac-Torpedo 6....42-25	119	204 1/2	58	61 1/2	6.00/16	3305	1062	6-3 5/8x4	30.4	239.2	90-3200	175-1400	6.50	7.50	CI	160	1000	15.86	42.17	.38	37.2	3059
39	Pontiac-Streamliner 6....42-26	122	210 1/4	58	61 1/2	6.50/16	3415	1118	6-3 5/8x4	30.4	239.2	90-3200	175-1400	6.50	7.50	CI	160	1000	16.37	43.50	.38	37.0	3130
40	Pontiac-Torpedo 8....42-27	119	204 1/2	58	61 1/2	6.00/16	3360	1088	8-3 1/4x3 3/4	33.8	248.9	103-3500	190-2200	6.50	7.50	CI	158	1000	15.49	37.43	.41	38.2	3059
41	Pontiac-Streamliner 8....42-28	122	210 1/4	58	61 1/2	6.50/16	3485	1144	8-3 1/4x3 3/4	33.8	248.9	103-3500	190-2200	6.50	7.50	CI	158	1000	16.01	38.69	.41	37.9	3130
42	Studebaker-Champion 6....4G	110	193	56 1/4	57	5.50/16	2495	840	6-3x4	21.6	169.6	80-4000	134-2000	6.50	7.00	CI	105	CS	17.82	37.75	.47	34.3	3161
43	Studebaker-Commander 6..12A	119	210 1/4	58 1/4	60 5/16	6.25/16	3265	1128	6-3 5/8x4 3/4	28.3	226.2	94-3600	176-1600	6.50	7.00	CI	105	CS	16.64	41.79	.42	35.0	3018
44	Studebaker-President 8....8C	124	215 3/4	58 1/8	60 5/16	7.00/15	3485	1262	8-3 1/16x4 1/4	30.0	250.4	117-4000	200-2400	6.50	7.00	CI	105	CS	15.91	34.06	.47	35.1	2982
45	Willys-Americar....442	104	181	55 1/4	58 1/4	5.50/16	2261	811	4-3 1/8x4 3/8	15.6	134.2	63-3900	108-1800	6.48	6.81	CI	111	185	20.57	43.83	.47	32.1	3423

ABBREVIATIONS:

Note: Shipping weights and prices are for cars with standard equipment including spare wheel, tire and tube.

§—Based on shipping weights of the cheapest five-passenger, four-door sedan, plus 500 pounds

††—Computed on basis of displacement, rear axle ratio, effective tire diameter and shipping weight plus 500 pounds

†—Computed on basis of tire revolutions per mile in conjunction with rear axle ratio of cheapest five-passenger, four-door sedan

*—Venturi size

•—Hydra-Matic Drive—full automatic, hydraulically operated—at extra cost

**—Vaca-Matic (Underdrive)—with fluid flywheel and vacuum shift—at extra cost

‡—Simpli-Matic (Underdrive)—fluid flywheel and vacuum shift—at extra cost

••—Drive-Master with vacuum and electric shift—at extra cost

‡‡—Liqua-Matic Drive—vacuum electric shift—at extra cost

§—Electromatic Drive—vacuum electric shift—at extra cost

■■—Turbo-Matic Drive—fluid flywheel and vacuum electric shift—at extra cost

■—Outer only:
Inner—20 lbs., 1 13/32 in., valve closed
51 lbs., 1 3/16 in., valve open

▼—Outer only:
Inner—21 lbs., 1.375 in., valve closed
51 lbs., 1.031 in., valve open

(a)—Models 61, 63—126 in.; 62—129 in.; 60S—133 in.

(b)—Models 61, 63—214 5/8 in; 62—219 5/8 in.; 60S—223 3/4 in.

(c)—Model 67—228 1/2 in.; 75—226 1/2 in.

(d)—Model Six—198 1/4 in.; DeLuxe Six—200 1/2 in.

(e)—Model 2000—208 1/2 in.; 2020—201 in.

(f)—Model 2001—208 1/2 in.; 2021—206 1/2 in.

(g)—Model 2003—215 1/2 in.; 2023—206 1/4 in.; 2004—217 3/8 in.; 2005—227 1/4 in.

(h)—Model 2006—215 1/2 in.; 2007—217 3/8 in.; 2008—227 1/4 in.

(i)—Model 2021—60 1/8 in.; Model 2001—60 1/16 in.

(k)—Models 2004-7—59 1/16 in.; 2003-6-23—60 1/16 in.; 2005-8—62 1/8 in.

(m)—Model Six—5.50/16 in.; DeLuxe Six—6.00/16 in.

(n)—Model Super-Six—6.00/16 in.; Commander Six—6.25/16 in.

(o)—Model 24—6.25/16 in.; 25—6.50/16 in.

(p)—Model 2001—6.50/16 in.; 2021—7.00/15 in.

(r)—Models 2003-6-23—7.00/15 in.; 2004-5-7-8—7.00/16 in.

(s)—Upper 3/32; Lower 1/8

(t)—Third ring .124; Fourth .186

(u)—No. 1—.093; No. 2—.124

For "Progress in Engine Design" see page 87

PASSENGER CARS

Arrangement	Valve Seat Inserts (Exhaust)	Valves: Spring Pressure (Lb.) Closed	Valves: Spring Pressure (Lb.) Open	Valves: Intake Head Diameter	Valves: Intake Seat Angle	Valves: Exhaust Head Diameter	Valves: Exhaust Seat Angle	Pistons: Material	Pistons: Weight (Oz.) Without Rings, Pin or Bushing	Pistons: Pin Diameter	Pistons: Pin Locked In	Rings: Number and Width—Compression	Rings: Number and Width—Oil	Camshaft Drive—Make and Type	Vibration Damper	Number of Main Bearings	Crankpin Journal: Diameter (In.)	Crankpin Journal: Length (In.)	Carburetor: Make and Size	Carburetor: Model	Gear Shift—Type	Spark Plug—Make and Model	Electrical System—Make	Battery—Make	Rear Axle: Type	Rear Axle: Final Drive	Rear Axle: Torque Medium	Rear Axle: Gear Ratio	Front Suspension	Line Number
I	N	32	77	1.53	45	1.34	45	CI	23.73	.813	R	2-3/32	2-3/32	LB...Ch	Y	5	2.00	1.21	S-C...1	(x)	Mec	AC...46	DR	DR	1/2F	Hyp	TT	4.08	IC	1
I	N	32	77	1.53	45	1.34	45	CI	23.73	.813	R	2-3/32	2-1/16	LB...Ch	Y	5	2.00	1.21	S-C...1	(x)	Mec	AC...46	DR	DR	1/2F	Hyp	TT	4.45	IC	2
I	N	32	77	1.53	45	1.34	45	CI	23.73	.813	R	2-3/32	2-1/16	LB...Ch	Y	5	2.00	1.21	S-C...1	(y)	Mec	AC...46	DR	DR	1/2F	Hyp	TT	4.45	IC	3
I	N	32	77	1.78	45	1.43	45	Al	18.85	.875	R	2-3/32	2-1/16	LB...Ch	Y	5	2.25	1.31	S-C...1	(z)	Mec	AC...46	DR	DR	1/2F	Hyp	TT	3.92	IC	4
I	N	32	77	1.78	45	1.43	45	Al	18.85	.875	R	2-3/32	2-1/16	LB...Ch	Y	5	2.25	1.31	S-C...1	(z)	Mec	AC...46	DR	DR	1/2F	Hyp	TT	4.08	IC	5
I	N	32	77	1.78	45	1.43	45	Al	18.85	.875	R	2-3/32	2-1/16	LB...Ch	Y	5	2.25	1.31	S-C...1	(z)	Mec	AC...46	DR	DR	1/2F	Hyp	TT	4.55	IC	6
L	N	63½	145	1.88	45	1.63	45	Al	18.32	.875	F	2-(s)	2-3/32	LB...Ch	Y	3	2.46	2.03	S-C...1	(aa)	•	AC...104	DR	DR	1/2F	Hyp	RS	3.77	IC	7
L	N	63½	145	1.88	45	1.63	45	Al	18.32	.875	F	2-(s)	2-3/32	LB...Ch	Y	3	2.46	2.03	S-C...1	(aa)	•	AC...104	DR	DR	1/2F	Hyp	RS	4.27	IC	8
I	N	55	128	1.64	30	1.46	30	CI	26.90	.865	R	2-.1237	1-.1862	Var...Ge	Y	4	2.31	1.49	Car...1¼	483S	MV	AC...104	DR	DR	1/2F	Hyp	TT	4.11	IC	9
L	Y	42	111	1.90	45	1.53	45	CI	.....	.859	F	2-3/32	2-3/32	Mor...Ch	Y	4	2.12	1.21	Car...1½	EE1	**	AL...A7	AL	Wil	1/2F	Hyp	RS	3.90	IC	10
L	Y	55	133	1.53	45	1.34	45	Al	16.30	.859	F	2-3/32	2-3/32	Whi...Ch	Y	5	2.18	1.18	Str...1¼	AAV-2	**	AL...A7	AL	AL	1/2F	Hyp	RS	3.91	IC	11
L	Y	55	133	1.53	45	1.34	45	Al	16.30	.859	F	2-3/32	2-3/32	Whi...Ch	Y	5	2.18	1.18	Str...1¼	AAV-2	Vac	AL...A7	AL	AL	1/2F	Hyp	RS	3.58	IC	12
L	N	20	41	1.37	45	1.15	45	CI	17.50	.750	F	2-1/8	1-1/32	.....Ge	N	2	.75	1.00	Til.....⅞	DY-1A	Mec	AL...A5	AL	AL	1/2F	SB	TT	5.14	C	13
L	Y	42	111	1.71	45	1.53	45	CI	.....	.859	F	2-3/32	2-3/32	Mor...Ch	Y	4	2.12	1.21	Car...1½	EE1	‡	AL...A7	AL	Wil	1/2F	Hyp	RS	3.90	IC	14
L	Y	42	111	1.53	45	1.40	45	Al	.....	.859	F	2-3/32	2-3/32	Mor...Ch	Y	4	2.06	1.00	Str...1½	BXV-3	Mec	AL...A7	AL	AL	1/2F	Hyp	RS	4.10	IC	15
L	Y	38½	78	1.62	45	1.48	45	CS	16.23	.850	F	2-.095	1-.1885	CD...Ge	..	4	2.23	1.40	Own..1 3/16"	.....	Mec	CH...H9	Own	Own	3/4F	SB	TT	3.78	Ct	16
L	Y	38½	78	1.51	45	1.51	45	CS	11.62	.750	F	2-.0917	1-.1537	CD...Ge	N	3	2.00	1.75	Own..94"	.....	Mec	CH...H9	Own	Own	3/4F	SB	TT	3.78	Ct	17
L	N	40	80	1.37	45	1.37	45	Al	16.00	.750	F	2-.093	2-.1560	CD...Ge	Y	3	1.93	1.37	Car...1¼	454S	••	CH...J9	AL	Nat	1/2F	SB	RS	4.55	IC	18
L	N	40	80	1.37	45	1.37	45	Al	16.00	.750	F	2-.093	2-.1560	CD...Ge	Y	3	1.93	1.37	Car...1	501S	••	CH...J9	AL	Nat	1/2F	SB	RS	4.11	IC	19
L	N	40	80	1.50	45	1.37	45	Al	16.00	.750	F	2-.093	2-.1560	CD...Ge	Y	5	1.93	1.37	Car...1¼	502S	••	CH...J9	AL	Nat	1/2F	SB	RS	4.11	IC	20
L	N	40	80	1.50	45	1.37	45	Al	16.00	.750	F	2-.093	2-.1560	CD...Ge	Y	5	1.93	1.37	Car...1¼	502S	••	CH...J9	AL	Nat	1/2F	SB	RS	4.11	IC	21
L	Y	54	116	1.53	45	1.53	45	CS	.....	.750	F	2-.0932	1-.1847	Own...Ge	..	4	2.12	1.75	Own...1°	.....	‡‡	CH...H9	Own	Own	3/4F	Hyp	TT	4.22	Ct	22
L	Y	54	116	1.53	45	1.53	45	CS	.....	.750	F	2-.0932	1-.1847	Own...Ge	..	4	2.12	1.75	Own...1°	.....	‡‡	CH...H9	Own	Own	3/4F	Hyp	TT	4.22	Ct	23
L	Y	38½	78	1.51	45	1.51	45	CS	12.70	.750	F	2-.0917	1-.1537	CD...Ge	..	3	2.14	1.75	Own..94°	.....	‡‡	CH...H9	Own	Own	3/4F	SB	TT	3.54	Ct	24
L	N	39	83	1.34	45	1.28	45	CI	.....	.812	F	2-.093	1-.1860	W-D...Ch	Y	4	1.87	1.25	Car...1¼	513S	Mec	AL...AN7	DR	AL	1/2F	Hyp	TT	4.11	IC	25
I	N	38	95	1.75	45	1.59	45	Al	.....	.875	F	2-.124	2-.1550	W-D...Ch	Y	7	2.00	1.42	Car...1¼	484S	Mec	AC...45	AL	AL	1/2F	Hyp	RS	4.10	IC	26
I	N	38	95	1.65	45	1.46	45	Al	16.00	.875	F	2-.124	2-(t)	W-D...Ch	Y	9	2.00	1.23	Car.....1	538S	Mec	AC...45	AL	AL	1/2F	Hyp	RS	4.10	IC	27
L	N	50½	95½	1.56	30	1.42	45	AS	27.00	.859	P	2-3/32	2-1/16	Whi...Ch	Y	4	2.12	1.25	Car...1½	523S	•	AC...44	DR	DR	1/2F	Hyp	SA	4.10	IC	28
L	N	50½	95½	1.56	30	1.42	45	AS	27.00	.859	P	2-3/32	2-1/16	Whi...Ch	Y	4	2.12	1.25	Car...1½	523S	•	AC...44	DR	DR	1/2F	Hyp	SA	4.30	IC	29
L	N	50½	95½	1.56	30	1.42	45	AS	24.00	.859	P	2-3/32	2-1/16	LB...Ch	Y	5	2.12	1.25	Car...1¼	503S	•	AC...44	DR	DR	1/2F	Hyp	SA	4.10	IC	30
L	N	50½	95½	1.56	30	1.42	45	AS	24.00	.859	P	2-3/32	2-1/16	LB...Ch	Y	5	2.12	1.25	Car...1¼	503S	•	AC...44	DR	DR	1/2F	Hyp	SA	4.30	IC	31
L	N	50½	95½	1.56	30	1.42	45	AS	24.00	.859	P	2-3/32	2-1/16	LB...Ch	Y	5	2.12	1.25	Car...1¼	503S	•	AC...44	DR	DR	1/2F	Hpy	SA	4.30	IC	32
L	....	54½	124	1.59	30	1.37	45	CI	25.12	.875	F	2-(u)	1-.1865	M-R...Ch	Y	4	2.09	1.25	Car...1¼	530S		(bb)	(cc)	W-A	1/2F	Hyp	RS	4.30	IC	33
L	....	54½	124	1.48	30	1.37	45	CI	22.75	.875	F	2-(u)	1-.1865	M-R...Ch	Y	5	2.09	1.25	Car.....1	512S		(bb)	AL	W-A	1/2F	Hyp	RS	(dd)	IC	34
L	....	63	140	1.68	30	1.43	45	Al	20.25	.875	F	2-(u)	1-.1865	Mor...Ch	Y	9	2.25	1.37	Car...1¼	531S		(bb)	AL	AL	1/2F	Hyp	RS	(ee)	IC	35
L	....	63	140	1.68	30	1.43	45	Al	20.25	.875	F	2-(u)	1-.1865	Mor...Ch	Y	9	2.25	1.37	Car...1¼	531S		(bb)	AL	AL	1/2F	Hyp	RS	(ee)	IC	36
L	Y	42	111	1.53	45	1.40	45	CI	25.29	.859	F	2-3/32	2-3/32	Mor...Ch	Y	4	2.06	1.00	Car...1½	D6G1	MV	AL...A7	AL	AL	1/2F	Hyp	RS	3.90	IC	37
L	N	59½	101	1.59	30	1.46	45	CN	27.04	.937	P	2-3/32	1-3/16	Mor...Ch	Y	4	2.12	1.28	Car...1¼	521S	Mec	AC...45	DR	DR	1/2F	Hyp	RS	4.10	IC	38
L	N	59½	101	1.59	30	1.46	45	CN	27.04	.937	P	2-3/32	1-3/16	Mor...Ch	Y	4	2.12	1.28	Car...1¼	521S	Mec	AC...45	DR	DR	1/2F	Hyp	RS	4.30	IC	39
L	N	59½	101	1.46	30	1.34	45	CN	24.64	.937	P	2-3/32	1-3/16	Mor...Ch	Y	5	2.00	1.06	Car...1¼	540S	Mec	AC...45	DR	DR	1/2F	Hyp	RS	4.10	IC	40
L	N	59½	101	1.46	30	1.34	45	CN	24.64	.937	P	2-3/32	1-3/16	Mor...Ch	Y	5	2.00	1.06	Car...1¼	540S	Mec	AC...45	DR	DR	1/2F	Hyp	RS	4.30	IC	41
L	N	54	92	1.34	45	1.28	45	CI	.....	.750	R	2-(s)	1-3/32	CD...Ge	Y	4	1.81	1.12	Car...1¼	496S	Mec	CH...J9	AL	Wil	1/2F	Hyp	RS	4.10	IT	42
L	N	56	130	1.46	45	1.28	45	CI	.....	.875	R	2-3/32	1-3/16	CD...Ge	Y	4	2.18	1.37	Str...1¼	BXOV-26	▬	CH...J9	AL	Wil	1/2F	Hyp	RS	4.09	IT	43
L	N	56	130	1.40	45	1.28	45	CI	.....	.875	R	2-1/8	1-3/16	CD...Ge	Y	9	1.87	1.18	Str...1¼	AAV-26	▬	CH...J9	AL	Wil	1/2F	Hyp	RS	4.09	IT	44
L	N	50	116	1.53	45	1.46	45	CI	24.00	.812	R	2-3/32	1-3/16	LB...Ch	N	3	1.93	1.30	Car...1¼	507S	Mec	CH...J9	AL	AL	1/2F	Hyp	RS	4.44	C	45

(x)—Stromberg AAV-16 or Carter WCD-4878
(y)—Front—Stromberg AAV-16 or Carter WCD-5288
Rear—Stromberg AA-1 or Carter WCD-5298
(z)—Front—Stromberg AAV-16 or Carter WCD-5338
Rear—Stromberg AA-1 or Carter WCD-5348
(aa)—Stromberg AAV-26 or Carter 4868
(bb)—AC104 or Champion Y4A
(cc)—Auto-Lite and Delco-Remy
(dd)—4.10 on Model 2001; 4.08 on Model 2021
(ee)—3.92 on Models 2003-6-23; 4.09 on Models 2004-7; 4.06 on Models 2005-8
AC—AC Spark Plug Division
Al—Aluminum
AL—The Electric Auto-Lite Co.
AS—Armasteel
C—Conventional
Car—Carter Carburetor Co.
CD—Continental Diamond Fibre Co.
Ch—Chain
CH—Champion Spark Plug Co.
CI—Cast Iron
CN—Chrome Nickel Alloy Cast Iron
Cs—Cranking Speed
CS—Cast Steel
Ct—Conventional with transverse springs
DR—Delco-Remy Division
F—Floating
½F—Semi-Floating
¾F—Three-Quarters Floating
Ge—Gear
Hyp—Hypoid
I—In Head
IC—Independent Coil
IT—Independent Transverse
L—"L" Head
LB—Link Belt Co.
Mec—Mechanical
Mor—Morse Chain Co.
M-R—Morse Chain Co. or Ramsey Chain Co.
MV—Mechanical-vacuum assist.
N—No
Nat—National Battery Co.
No—No or None
P—Piston
R—Rod
RS—Rear Springs
SA—Stabilizing Arms
SB—Spiral bevel
S-C—Stromberg and Carter
Str—Stromberg Carburetor Division
Til—Tillotson Mfg. Co.
TT—Torque tube
Vac—Vaca-Matic (Underdrive) as standard equipment
Var—Various
W-A—Willard and Auto-Lite
W-D—Whitney and Diamond Chain Co.
Whi—Whitney Mfg. Co.
Wil—Willard Storage Battery Co.
Y—Yes

For "Progress in Engine Design" see page 87

The Story of the Past Two Years

High Spots of the Activity of the Automotive Industry as Recorded from Issue to Issue in AUTOMOTIVE *and* AVIATION INDUSTRIES

January 1, 1940

Peak production for 1939 (115,000 cars and trucks) was reached in the week ending Dec. 23. **Total output (cars and trucks) for 1939 estimated at 3,718,000.** . . . Restrictions on the sale of gasoline in Europe have led to renewed interest in gas generators and producers for motor vehicle propulsion. . . . Reo Motor Car Co. gets $2,000,000 loan from RFC. . . . **Steel output for first quarter expected to be 80 per cent of capacity, with automobile manufacturing becoming a greater factor than in past few months.** . . . Crude rubber consumption reported down 2.6 per cent in November. . . . ASI Show in Chicago draws 25,000 manufacturers and jobbers. . . . **NLRB orders Ford to bargain with CIO-UAW.** . . . FTC issues cease and desist order on "Six Per Cent" time payment plan advertising. . . . **Tariff Commission reporting decline in crude rubber stocks from 259,000 long tons, Oct. 31, 1938 to 133,000 on Oct. 31, 1939, says if shortage occurs we will use greater quantities of reclaimed; production of substitutes could be expanded but one to four years would be required to meet even minimum requirements.** . . . Financed sales of automobiles increased 16.4 per cent in Oct., 1939, over Sept., according to Bureau of Census. . . . Curtiss-Wright starts personnel training. . . . Tire sales totaled 56 million units in 1939 against 43 million in 1938. . . . Glenn L. Martin Co. awarded $16,000,000 contract for new type 2-engine medium bombers. . . . **CAA awards type certificate to Wright Aeronautical Corp. on 18-cylinder, 2000-hp. engine.** . . . State Department adds molybdenum and aluminum to list of metals morally embargoed to countries guilty of unprovoked bombing of civilians. . . . Quote from lead article, **"As it stands today, the National Labor Relations Act is a most effective brake on economic recovery."**

January 15, 1940

Production of cars and trucks in January estimated to reach 450,000; production during first week affected by plant inventories. . . . Predictions for '40 optimistic with note of caution. . . . GM completes 25,000,000th car. . . . **Wave of strikes in Detroit area finds city equipped with Council for Industrial Peace.** . . . Powered scooters open new automotive field. . . . Reo re-organization completed; will build trucks and buses. . . . **AFL-CIO petitions NLRB to order investigation to determine bargaining units in 67 GM plants.** . . . The Temporary National Economic Committee to review technological development and its relation to employment. . . . NSPA index reveals November sales drop. . . . Little change in steel price trend seen for '40; car sales to influence shaping of market; **steel operations during week ending Jan. 6, at 85.7 per cent ingot capacity.** . . . Canada watches development of Australian automobile manufacturing subsidy. . . . GM extends employee layoff benefit plans . . . Automobile plants increase aluminum purchases. . . . Casing shipments in November fell 3.7 per cent to 4,243,791 units. . . . Motor Boat Show opens 35th Exhibit, New York, Jan. 5. . . . **War Department announces that designs for autogyros will be accepted until March 28 under design competition plan for inviting bids.** . . . For December output highest since June, '37. . . . Quote from lead article—**"Organized Labor . . . has a selling job to do. . . . It has to convince us that it is a positive factor in raising the STANDARD of living and not merely a lever for boosting the COST of living."**

February 1, 1940

Production of cars and trucks in January estimated at 460,000 vehicles, a record for the January month. . . . Total retail deliveries in '39 estimated at 3,244,537 units. . . . Stewart-Warner produced 1,750,000 speedometers per year, averaged, since 1905. . . . Thirty-one exhibitors at Motor Boat Show were automotive companies. . . . SAE annual meeting in January drew 1000 member attendance. . . . **Bill to give FTC broad powers over manufacturer-dealer relations features NADA convention discussion.** . . . Auburn reorganization plan has U. S. District Court approval. . . . **AMA announces extensive changes in committee structure, following establishment of headquarters in Detroit.** . . . November, '39, financing of retail automobile purchases at $113,940,000, a 24.4 per cent increase over November, '38, according to Commerce Department report. . . . **Tin prices sag to 45 cents at end of month as war boom wanes.** . . . GM leads in 1939 advertising expenditure with $6,010,681 of automobile companies total of $14,147,962. . . . **UAW-CIO announced it would serve notice on GM of basic demand for contract revisions, in campaign for support of company employes; demands include a guaranteed annual wage with a 30-hour week at 40-hour pay, paid vacations, pay on day rate basis, and improved seniority provisions, among other proposals.** . . . '39 rim inspections gained 65 per cent over '38; December up 14 per cent to 2,070,799. . . . AMA urges renewal of Reciprocal Trade Act, stressing benefits to farmers, labor and industry.

February 15, 1940

Production during February of cars and trucks estimated between 385,000 and 390,000 . . . **Australia pushes plans for domestic production of complete motor vehicles.** . . . 1939 tractor production valued at $157,744,209. . . . **Machine tool manufacturers agree to priorities of deliveries to aircraft builders.** . . . Supreme Court to review Walsh-Healey wage determination effecting steel companies contracting with U. S. Government. . . . Stanley Horner reelected president of NADA. . . . Customer color options on 1940 models continues away from black, Buick reports. . . . **Delay of automobile manufacturers in placing fresh commitments held responsible for drop in flat rolled steel production; "prophets" see fall to 60 per cent capacity.** . . . Two-and-a-half years of China war almost wreck Japan's automotive industry. . . . December rim inspections 14 per cent above '38 mark, at 2,070,799. . . . Elco Works to build 12 sub-chasers, 11 torpedo boats on $5,000,000 Navy contract. . . . **Standard Oil of N. J. acquires from German company rights to produce buna synthetic rubber.** . . . December machine tool exports 30 per cent above '38. . . . Quote from lead article, **"If any dog ever was wagged by its tail, the Wagner Act (speaking figuratively, of course) is that dog, and the tail is the Labor Board."**

March 1, 1940

Production of cars and trucks in February tops 400,000 units. . . . **Railway-Auto travel service plan, with 2000 five-passenger sedans, costing $1,500,000 to start May 1.** . . . NSPA reports January sales up 11 per cent. . . . FTC plans distribution cost study questioning advertising cost to consumer. . . . January rim inspections up 23 per cent over '39. . . . O. S. Beyer of Mediation

(*Turn to page* 160, *please*)

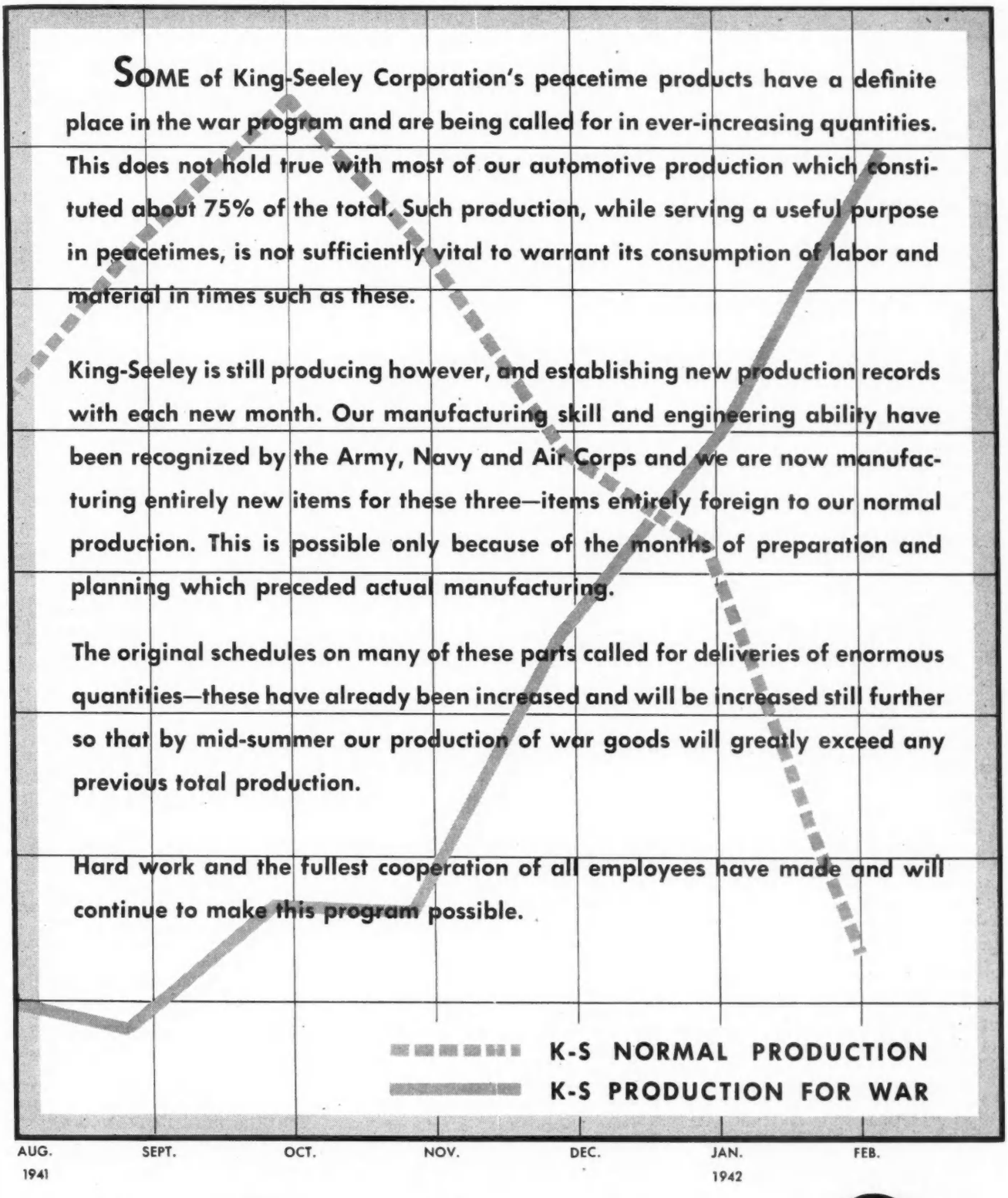
TRANSITION

SOME of King-Seeley Corporation's peacetime products have a definite place in the war program and are being called for in ever-increasing quantities. This does not hold true with most of our automotive production which constituted about 75% of the total. Such production, while serving a useful purpose in peacetimes, is not sufficiently vital to warrant its consumption of labor and material in times such as these.

King-Seeley is still producing however, and establishing new production records with each new month. Our manufacturing skill and engineering ability have been recognized by the Army, Navy and Air Corps and we are now manufacturing entirely new items for these three—items entirely foreign to our normal production. This is possible only because of the months of preparation and planning which preceded actual manufacturing.

The original schedules on many of these parts called for deliveries of enormous quantities—these have already been increased and will be increased still further so that by mid-summer our production of war goods will greatly exceed any previous total production.

Hard work and the fullest cooperation of all employees have made and will continue to make this program possible.



KING-SEELEY CORPORATION
ANN ARBOR, MICHIGAN

AS THE RECORD UNFOLDS

AUGUST, 1941 (*Continued from page 49*)

them to the manufacture of military equipment. Of the $1,200,000,000 in defense contracts assigned to General Motors, he states that *"due to the requirements for specialized machinery, fully 75 per cent are outside the corporation's normal activities; and 90 per cent are outside the normal area of production of the automotive industry as a whole, the remaining 10 per cent comprises principally the production of military trucks."*

3rd—*"Above all, there should be no arbitrary curtailment of automobile production until there is work available on defense projects."*—R. J. Thomas, UAW-CIO president.

4th—Japanese shipping to United States suspended.

11th—President Roosevelt and Winston Churhchill formulate Atlantic Charter.

12th—Hundreds of machine tools, some drastically rebuilt, have been converted to defense production by the automobile industry, Automobile Manufacturers Association survey shows.

15th—During recent weeks the automotive industry received from the U. S. Government more than $128,347,000 in defense orders.

21st—OPM establishes four-months' (Aug.-Nov.) production quota of 73½ per cent of 1940 period for passenger car manufacturers.

28th—Vice-President Wallace named head of the newly created seven-man Supply Priorities and Allocation Board.

SEPTEMBER, 1941

1st—The automobile industry's defense orders from Sept. 1, 1939, to date total $3,530,000,000.

2nd—Installment credit control becomes effective on automobiles, radios and 21 other durable consumer items.

4th—An official survey discloses that little more than one-half the plants cataloged on the original Army-Navy industrial mobilization plans are working on munitions orders: The survey covered 11,819 private plants; only 6657 now have defense contracts.

10th—*"Some people may be critical of the automobile industry for bringing out new models at this time. . . . The answer is that we could not have effected the savings in the materials needed for the defense program without important design changes. . . ."*—C. L. McCuen, General Motors vice-president.

12th—President issues "shoot on sight" order.

15th—OPM establishes quota of 51.6 per cent for December production of passenger automobiles.

15th—William S. Knudsen, OPM director, announced recently that there were 14,000 companies holding primary defense contracts, and approximately 65,000 to 70,000 with subcontracts: an OPM report made several months ago revealed 11,099 subcontractors in the Detroit area.

18th—President Roosevelt asks Congress for $5.985 billion more for Lend-Lease appropriation.

20th—President Roosevelt signs $3,553,400,000 tax bill, the largest in the nation's history.

30th—SPAB orders a 10,000,000-ton steel production expansion program.

OCTOBER, 1941

1st—In slightly over one year, July, 1940, through July 12, 1941, the automotive industry *and its suppliers* accepted from the Federal Government, defense contracts to the amount of $5,843,424,331. These contracts were distributed through approximately 1270 companies, and do not include subcontracts that have been received by or distributed through these companies.

9th—President Roosevelt asks repeal of that section of Neutrality Act pertaining to arming of merchant vessels: "I believe that it is essential that we cease giving the definite assistance which we are now giving to the aggressors."

10th—House passes new $6-billion Lend-Lease appropriation. (Signed by President, Oct. 28.)

12th—AUTOMOBILE MANUFACTURERS ASSOCIATION DECLARES DEFENSE ASSIGNMENTS TO AUTOMOBILE FIRMS ARE STILL FAR BELOW THE INDUSTRY'S QUOTA MEASURED BY ITS PROPORTIONATE SHARE OF PEACE-TIME PRODUCTION.

15th—January passenger car production quota set by OPM at 49 per cent.

15th—Prospective unemployment of more than 100,000 workers in Michigan automotive plants is reflected in the labor unrest evident in several companies facing large layoffs when the 48.4 per cent cut in passenger car production is felt in December.

15th—General Motors Corp. leads the industry with $1,200,000,000 in defense orders; this, in spite of its impressive total, is only 4½ per cent of the total defense business placed by the Government, compared to 8 per cent of the nation's durable goods which GM has been producing. Ford Motor Co. has $750 millions of defense orders. Chrysler Corp., with $400 millions is supplying the Government with a variety of products. Studebaker, with more than $100,000,000 in orders is rushing to completion three new plants. Hudson, with $120,000,000 in defense contracts, has a big project under way in new ordnance plant. Nash-Kelvinator orders amount to $100,000,000.

16th—Jap naval officer declares, *"Relations between Japan and United States are now approaching the final parting of ways, and the Japanese Navy is ready and itching for action if need be."*

23rd—Oil Commissioner Ickes announces removal of oil ban in eastern states: Britain returns 40 tankers.

25th—Navy Secretary Knox declares U. S. has given up all hope of coming to terms with Japan. Sees war as inevitable.

31st—Total defense orders of motor vehicle manufacturers from Sept. 1, 1939, to date total $4,272,676,000, including contracts scheduled for delivery in 1943.

NOVEMBER, 1941

1st—*"This country is, indeed, fortunate in this emergency to have had available to it the great American automotive industry and a wealth of automotive talent and production experience."*—Brigadier General G. M. Barnes, U. S. Army.

6th—One billion dollar lend-lease aid pledged by President to Russia.

12th—*"In the automobile industry, automobile production has not interfered with the output of war weapons. The suspension of automobile output by the Chrysler Corporation would not have resulted in the production of a single additional tank. In fact, the complete suspension of all normal peacetime production might so disrupt the finances and personnel of a corporation as actually to interfere with the defense effort."*—John W. Scoville, Chrysler Chief Statistician.

12th—OPM orders 35 machine tool manufacturers to give preference to and speed up production of $10- to $15-millions worth of machine tools for Russia.

14th—Neutrality Act revised to permit U. S. ships to enter combat zones and to be armed.

15th—IN FIRST NINE MONTHS OF 1941, CANADIAN CAR AND TRUCK PRODUCTION WAS 35 PER CENT ABOVE SAME PERIOD OF 1940.

18th—President Roosevelt asks Congress for $7.083 billions additional for defense, raising total for defense and lend-lease to $66 billions.

19th—*"Nothing must stop the work of organizing in America, not even*

(*Continued on page 124*)

The freedom from mechanical failures in commercial aircraft in recent years is partially due to the use of Chromium-Molybdenum (X4130) steel for many vital structural parts.

Ease of welding, often without need of subsequent heat treatment — response to normalizing in light sections — high toughness-strength ratio in fully heat treated medium sections — are all important factors contributing to the effectiveness of the steel.

Our free publication "Molybdenum Steels in Aircraft Production" gives information covering physical properties, heat treatment and welding of X4130 in bar stock, sheets and tubes. Data on other Moly steels used in aircraft structural parts are also included.

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MOLY

AS THE RECORD UNFOLDS

NOVEMBER, 1941 (*Continued from page 122*)

the great national emergency."—Phillip Murray, CIO head.

20th—February automobile production quota set by OPM at 44 per cent.

26th—U. S. embassy urges all Americans to leave Japan at once.

29th—President Quezon says outbreak of war in the Pacific would find the Philippines unprepared.

30th—Eight out of every 10 existing plants of the automobile industry have war work in progress or assigned to them . . . are producing war goods or being retooled for such work.

DECEMBER, 1941

1st—America's automobile industry, now rapidly being converted into workshops for the Arsenal of Democracy, has defense plants in 17 states and 67 communities. Its practice of farming out work to suppliers results in defense jobs in nearly all of the 48 states.

1st—Parts manufacturers pool production equipment in order to avoid losses due to cuts in automobile production, through organization of a Metal Working Manufacturers Committee.

5th—Britain declares war on Finland, Hungary and Rumania. House passes over $8 billion defense and Lend-Lease appropriations.

6th—*"Japan will not attack the United States unless it is convinced that Hitler will win against Russia. I think they will finally back down. Of course, if they are convinced that Hitler will win, they are almost certain to attack us in the Pacific."*—Senator George W. Norris.

7th—PEARL HARBOR.

8th—Congress declares war on Japan, followed with similar declarations by Britain, Canada, China, Dutch East Indies.

8th—Thailand joins Japanese.

11th—Germany and Italy declare war on the United States; Congress retaliates with war declarations.

12th—Ford and General Motors place armament work on 7-day, 24-hour basis; civilian production to be drastically curtailed.

15th—Passenger car production quota set by the OPM Division of Civilian Supply at 28.7 per cent of December, 1940. January, 1942, production fixed at 24.5 per cent cut of January, 1941, figure.

23rd—*"Last spring and at other times I urged the curtailment of passenger-automobile manufacture. The armed services have not had the power to control such matters. The shortage of materials, however, has gradually during 1941 brought about such curtailment. It may be that had this curtailment taken place sooner, there would have been even more idle machinery and labor, as the volume of defense orders which we were authorized to place at the time would not have used the facilities."*—Under Secretary of War Patterson.

JANUARY **1942**

1st—OPM freezes sales of new passenger cars and trucks.

2nd—Production of passenger cars and light trucks will end on or about Jan. 31, Civilian Supply Administrator Leon Henderson announces.

2nd—*"If that's what the Government wants, we're going to be with it all the way. But manufacturers must have more defense contracts which they can put into production on a mass scale."*—Alvan Macauley, AMA president.

2nd—*"The automobile workers are ready to endure any hardship which will contribute to the victory of our nation. However, we can't see the sense of blocking out the country's greatest reservoir of machinery and trained labor. . . . The most important single task before the nation is the rapid conversion of the automobile industry to war production. . . . Meanwhile, hundreds of thousands of unemployed automobile workers must have their needs and those of their families taken care of."*—R. J. Thomas, UAW-CIO president.

2nd—MANILA FALLS TO JAPS.

4th—*"The immediate effect of Leon Henderson's order stopping all automobile production on or about Feb. 1 will be large and accelerated layoffs which will bring almost total unemployment in the Detroit area to about 250,000. Defense employment in the factories where the automobiles have been produced is steadily gaining, but it will be some months before all the employment slack can be taken up in the defense effort."*—NY Times.

6th—President Roosevelt sets production goals: 1942—60,000 warplanes, including 45,000 combat planes; 45,000 tanks, 20,000 anti-aircraft guns, 8 million deadweight tons of merchant shipping; 1943—125,000 warplanes, including 100,000 fighters and bombers; 75,000 tanks, 35,000 anti-aircraft guns, 10 million deadweight tons of merchant shipping, and wants the Germans and Japs to know it.

7th—*"Each element in industry-manpower, research, engineering and plant facilities—must be organized by management for maximum production in the nation's war effort. To divide the responsibility for management would be to destroy the very foundation upon which America's unparalleled record of industrial accomplishment has been built."*—C. E. Wilson, General Motors president.

13th—WAR PRODUCTION BOARD ORGANIZED with Donald Nelson as its single head.

16th—Since Dec. 7, automobile manufacturers have received additional war orders amounting to $3.5 billions, bringing the total to almost $9 billions. Scheduled production "before Pearl Harbor" called for an output close to $3 billions in armament from the automobile industry in 1942.

21st—Ernst Kanzler, former Ford production chief in 1926, named to direct conversion of automobile industry.

24th—*"All of us know that the actual physical job of putting the various resources of this industry—its skilled labor, its expert management and its tools—to war work has got to be done by the industry itself, by the men in it who plan and manage production and the men in it who operate the machines."*—Ernest C. Kanzler, chief, Automotive Branch, WPB.

29th—*"All through the program, the real question is how to get tooled up. The machines that formerly made part "X" must be practically rebuilt or retooled so that they can make part "Y," and then they must all be lined up, tested out, men trained and put on a production basis. . . . There are several stages in converting the automobile industry. First, there must be something to convert to. This means an order for specific parts. After the order is received, then the designs must be made for the tools to make these parts. After the designs are completed, then tools must be actually made according to such designs. When the tools are completed, they must be fitted to the machines. Then men must be brought in and trained to work these machines with their new tools. Finally, the machines will start to produce."*—Ernest Kanzler, chief, Automotive Branch, WPB.

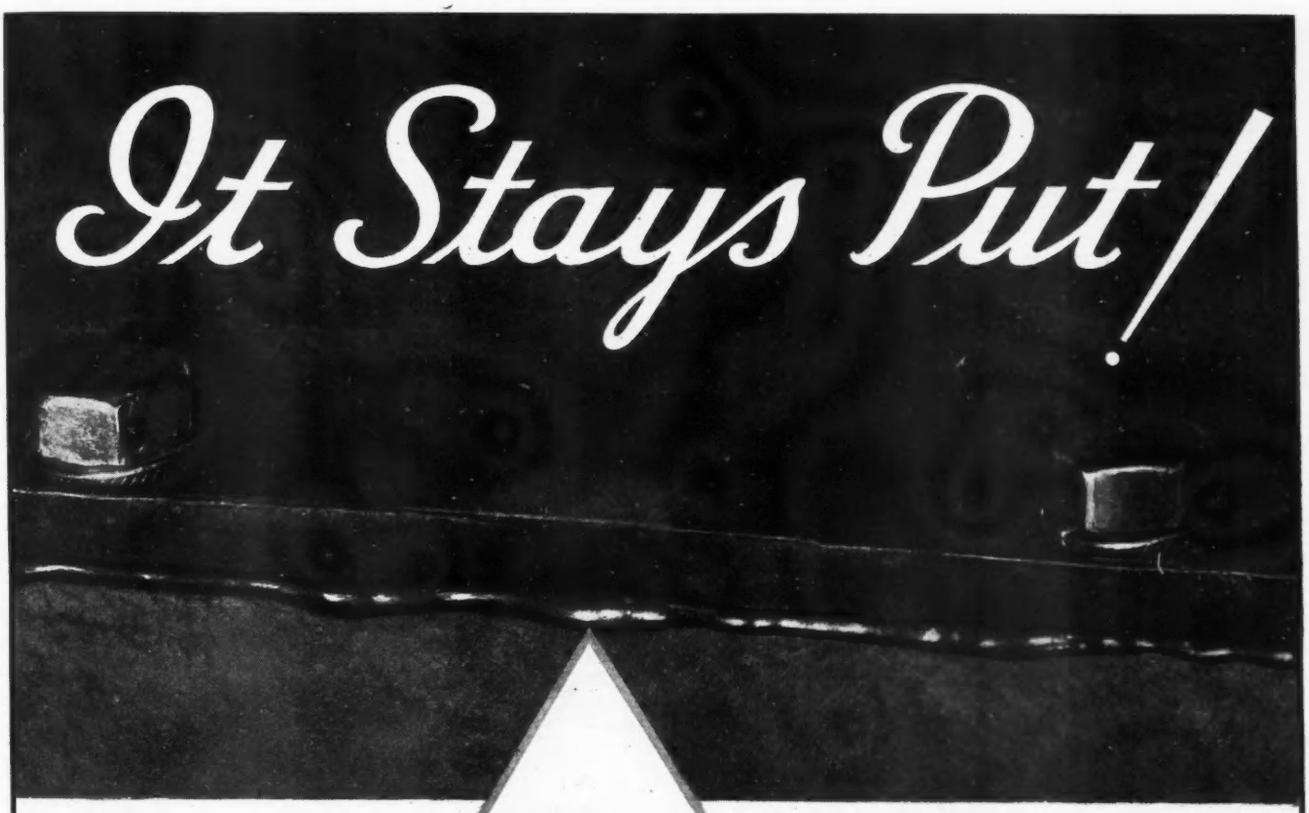
31st—Malaya conquered by Japs.

—U. S. Federal debt at new high of $62.38 billions; January war spending amounted to $2.101 billions.

—January machine tool shipments $85,200,000, a new monthly record.

—With civilian passenger car and light truck production ended, the industry is rushing completion of its all-out conversion to a war basis. WPB officials predict complete conversion by Sept. 1, 1942. Total war orders received to date by motor vehicle manufacturers are estimated at $10¾ billions.

It Stays Put!



Gasoline, in the tank or running through a pipe line to the carburetor... Lubricating Oil, slashing around in a crankcase or being pumped to all parts of a motor ... Water, hot or cold, passing through a radiator into the motor block... none of these fluids will make a bead of Permatex Form-A-Gasket move from position, melt or dissolve!

All three types of Permatex Form-A-Gasket stay where they are put. They seal completely and permanently.

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Form-A-Gasket Number 2 dries slowly and remains pliable.
Aviation Form-A-Gasket sets quickly but does not dry.

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Industry Responds to Nelson's Appeal

Plans for Titanic Production Surge to Be Considered at Labor-Management Meets; GM Offers "Suggestion" Rewards

Co-operating with the radio appeal of Donald M. Nelson, chief of the War Production Board, to step-up production immediately in order that armaments may be forthcoming to defeat the Axis powers, General Motors Corp. has put into effect an incentive plan for boosting individual output. In his broadcast to the nation March 2, Nelson asked that joint management-labor committees be set up to push the drive for increased production in each plant during the next 10 months. Then he asked these committees to provide machinery whereby each worker may submit ideas and suggestions for doing the job better. Such ideas with merit will be studied by the committees and the best will be forwarded to Washington for dissemination in other plants.

Under the new GM plan, as announced by President C. E. Wilson, boxes will be conveniently located in all plants in which suggestions for increasing individual production, improving quality, saving material, reducing waste or improving working conditions can be placed by the workers. These suggestions will be reviewed once a week by a plant suggestion committee composed of three to five men appointed by the plant manager from the engineering, drafting, personnel, time study, processing, or accounting depts.

Defense bonds and savings stamps up to $1,000 in value may be earned by an individual worker under the plan. For a suggestion accepted which relates to an employe's own job, he will be given an award equal in value to the increased production, figured in hours saved at the employe's earned rate, for the succeeding two months. Such suggestions which result in increased production by other employes on duplicate operations will bring an additional award equal to the saving on other jobs affected for a one-month period but not to exceed $1,000 (face value) of defense bonds. In addition, an award equal to one month's actual saving by such other employes on duplicate operations may be divided among them as determined by the suggestion committee.

For suggestions resulting in improved quality of production or improved safety conditions or similar matters not directly related to productive operation, an employe will receive an award ranging from $7.50 in defense stamps to a $25 (face value) defense bond. The amount will be determined by the suggestion committee. Employes doing creative work, such as engineering, processing, tool design or production planning, and foremen and supervisory employes will not be eligible for the awards. GM has found that encouraging suggestions may result in promotion of production workers to supervision, tool design, processing, or drafting work.

Management and labor representatives of major plants making tanks, ships, planes, guns, and machine tools have been called upon by Nelson to report to the WPB by April 1 of their progress in organizing joint labor-management committees for the all-out production drive. A handbook has been prepared outlining details for conducting the drive and government representatives will visit the plants to confer with management and labor on the best procedures on setting up the committees.

A Series of meeting in more than 25 cities throughout the nation will be held in the next few weeks to acquaint labor and management with the details of the production drive. Representatives of the WPB will address these

(*Turn to page* 154, *please*)

A-2 Rating for Truck Parts

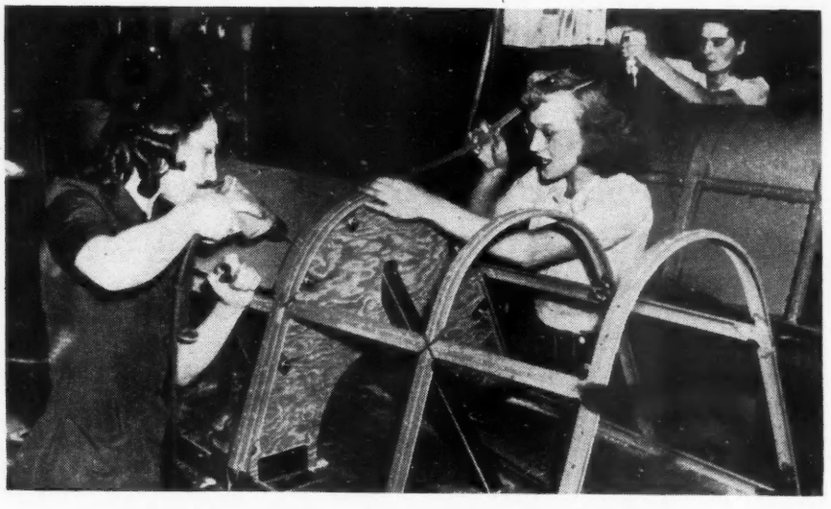
Replacement parts for medium and heavy trucks, truck-trailers and buses have been given an A-2 preference rating by the War Production Board in an order issued March 6. Under the new parts production program, manufacturers can make during the entire year up to 150 per cent of the number of spare parts sold by them for replacement purposes during 1941.

The new order provides that producers may not produce more than 75 per cent of this volume between January 1 and June 30; 112½ per cent between January 1 and September 30; the remainder to be produced during the last three months of 1942. Manufacturers will be permitted to obtain materials for production of up to 40 per cent of parts that are interchangeable between light trucks and passenger cars.

The order also requires manufacturers to file production requirement plans by June 1, and refrain from acquiring stock piles in excess of three months' manufacturing requirements.

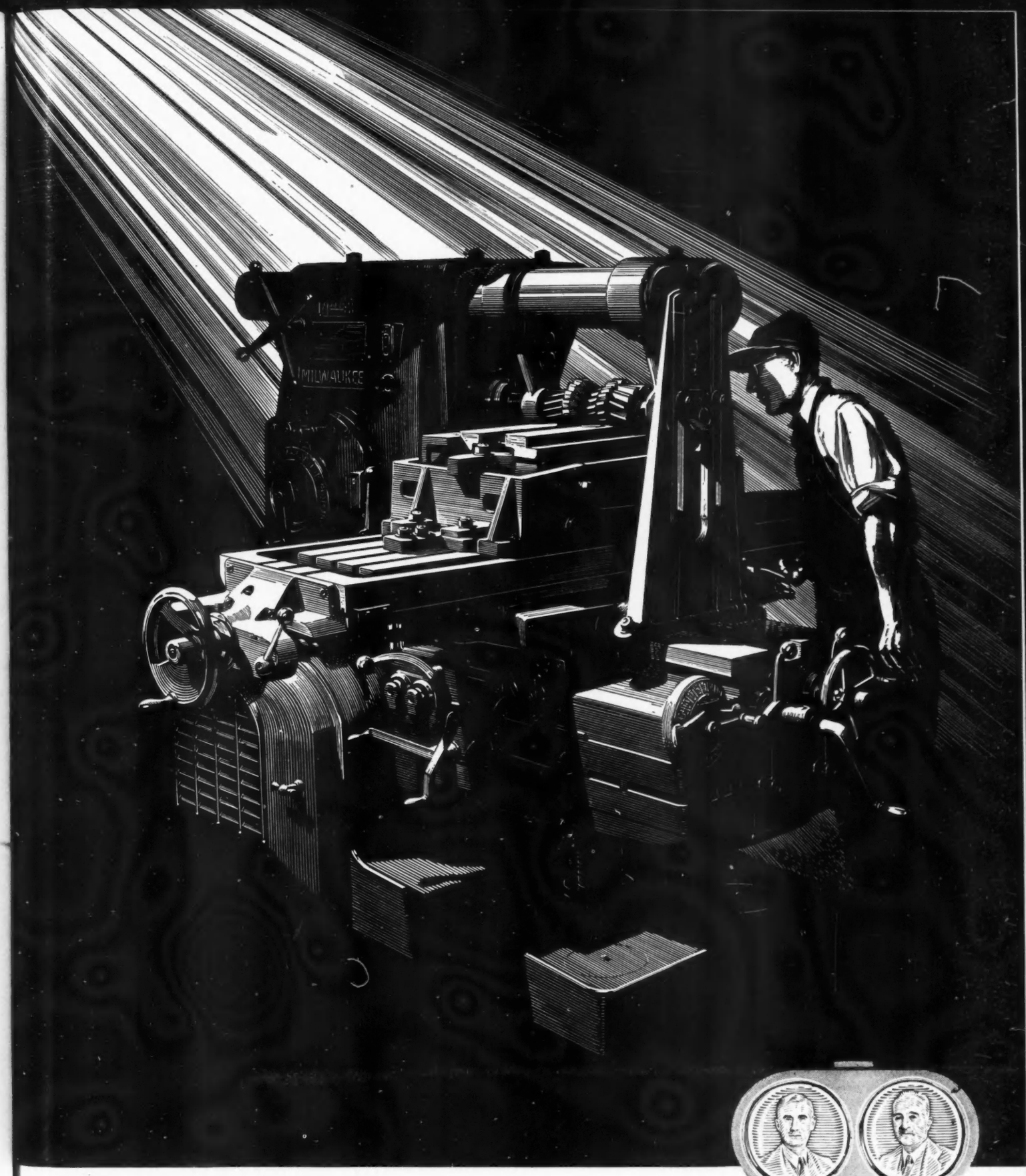
U. S. Rubber to Operate TNT Plant

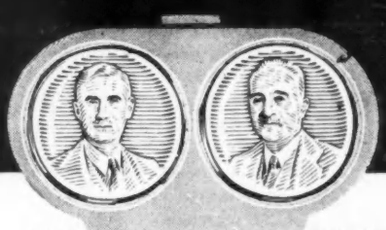
The United States Rubber Co. has been awarded a contract by the War Department to operate a new plant for the manufacture of trinitrotoluene. The plant, to be located in Pennsylvania, will be known as Pennsylvania Ordnance Works.



Women Trained for War Production

These two women shown assembling a cock-pit cabin are being trained by the Civil Service Commission at the Naval Aircraft Factory in the Philadelphia Navy Yard. The Commission is also training women workers for the Frankford Arsenal, Ordnance Department, and Signal Corps Depot, all in Philadelphia.





Milwaukee Model K Plain Milling Machine

Machines That Multiply America's Industrial Man-Power.

KEARNEY & TRECKER CORP., MILWAUKEE, WIS., U. S. A.

KEARNEY & TRECKER
CORPORATION
Milwaukee
MILLING MACHINES

Milwaukee MILLING MACHINES

Predict Full Plant Conversion by Sept. 1

Eighty-six of 90 GM Plants Listed for War Production; IHC Produces Pilot Model of M-4 All-Welded Medium Tank

Metamorphosis of the automobile industry from a producer of civilian transportation into a vast armament factory is proceeding at such a pace that even the furthest outlying assembly plants and parts manufacturing units are being converted to war work. So rapidly is the retooling going forward that James S. Knowlson, director of industry operations for the War Production Board, recently predicted that complete conversion of the industry would be achieved by Sept. 1.

Charles E. Wilson, president of GM, said that as of March 1 a total of 86 out of the corporation's 90 U. S. factories either already were producing war material or were being rearranged for war production. The four body and assembly plants not converted, two in Oakland, Cal., and two in Atlanta, Ga., either will be shifted to war work as soon as possible by the corporation or the plants will be sold or leased to the government or to other manufacturers. General Motors is undertaking to manufacture about 10 per cent in value of all war materials requiring metal fabrication. This includes a third of all the government's machine gun requirements, about one-half of the Army trucks, more than half of the Navy's diesel engines, 40 per cent of the aviation engines, and 25 per cent of the tanks.

All plants of the Chrysler Corp., including the major group at Detroit and others at Los Angeles and Evansville, Kokomo, and Newcastle, Ind., are heavily engaged in war production. The Chrysler assembly plant at Evansville is undergoing retooling costs estimated at $15 million and will employ 11,000 workers when full production is reached; this employment figure is higher than the peace-time peak. The branch plants in Indiana are engaged in supplying parts for bomber airframes, tanks, combat vehicles, anti-aircraft guns, and other military items.

Most of the 13 Ford branch assembly plants are being converted to war work. Plants at Richmond, Cal., Dallas, Louisville, Edgewater, N. J., St. Paul, and Chicago are scheduled to turn out army trucks and combat vehicles. The Long Beach, Cal. branch is being used by the Army Air Corps and the Chester, Pa. plant has a war assignment. The other plants either will be used by Ford for war manufacture or sold or leased for such work.

Fourteen Ford "village industry" plants in southeastern Michigan which employ more than 2500 workers also are devoted to war output. Some are making tools and dies for the huge bomber plant now under construction at Willow Run and later will make bomber parts. Others are turning out generators and starters for military vehicles. Still others produce gages used in war production.

The Studebaker assembly branch at Los Angeles is producing army vehicles and aircraft parts.

Centralization of all its propeller manufacturing activity at Lansing will permit the Nash-Kelvinator Corp. to shift its project for making Pratt & Whitney 1850-hp aircraft engines to the Nash Motor Division at Kenosha, Wis. The former Reo truck plant at Lansing, originally scheduled to produce aircraft engine parts, will be used in the expanded program for manufacturing three-bladed hydromatic propellers for bombing planes. Nash already is shipping propellers to the Air Corps from another ex-Reo plant in Lansing. Machinery at Lansing designated for aircraft engine manufacture will be shipped to Kenosha for installation there. Automobile plants space is being converted for the aircraft engine production but test houses will have to be built. The engine to be produced is the same one that Ford is turning out at River Rouge. Nash also may participate in the naval aircraft production program.

The Fisher Body Divicion of GM has

(*Turn to page* 152, *please*)

Propose Higher Gas and Oil Tax

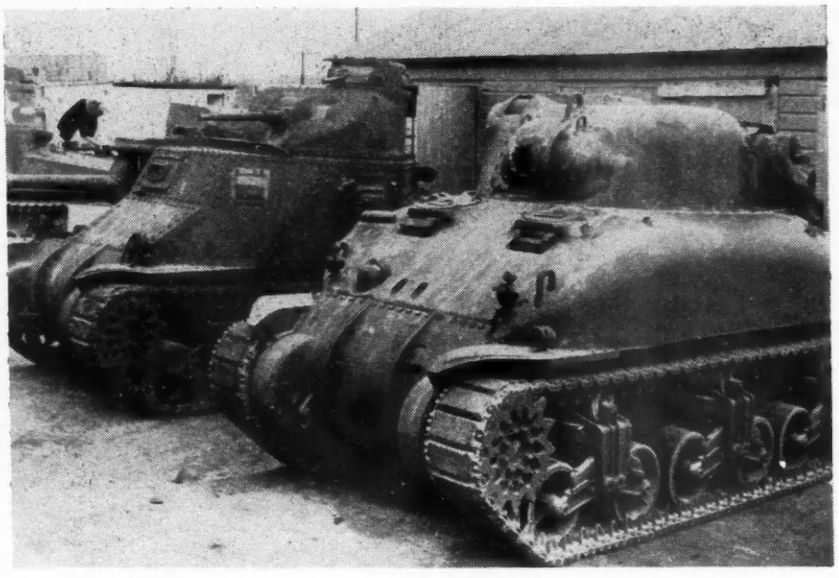
Proposals to double the Federal gasoline tax rate from 1½ cents per gallon to 3 cents per gallon and to boost the Federal lubricating oil tax from 4½ cents per gallon to 10 cents per gallon were placed before the Ways and Means Committee of the House of Representatives, March 3, by Secretary of the Treasury, Morgenthau.

The Treasury estimates that the increased gasoline tax rate would produce approximately $242,200,000 more revenue than is expected during the next fiscal year from the present rate. It is estimated that the increased lubricating oil tax will boost revenues to about $49,900,000 above returns from the present rate next year.

Treasury proposals also call for an increase of from 4½ per cent of the amount paid to 10 per cent of the amount paid for transportation of petroleum products by pipe lines.

A-10 Rating for Steel Strapping

Steel strapping is interpreted by authorities as "operating supplies" and as such carries a rating of A-10 under Preference Rating Order P-100. Because this order forbids the application of the rating to "non-ferrous material to be used as packaging supplies," there has been some misunderstanding to the effect that steel strapping could no longer be obtained. This is not so, as steel strapping is "ferrous" material and therefore is eligible to receive an A-10 rating on Preference Rating Order P-100.



Newest Medium Tank

The newest version (right) of medium tank, known as the M-4, has just been delivered for test. Equipped with a rivetless all-cast body, it is lower than the older M-3 (left) and carries a 75-mm cannon in the center of the turret; older models mounted this cannon on the right side. Total weight is about 30 tons.

Announcing...

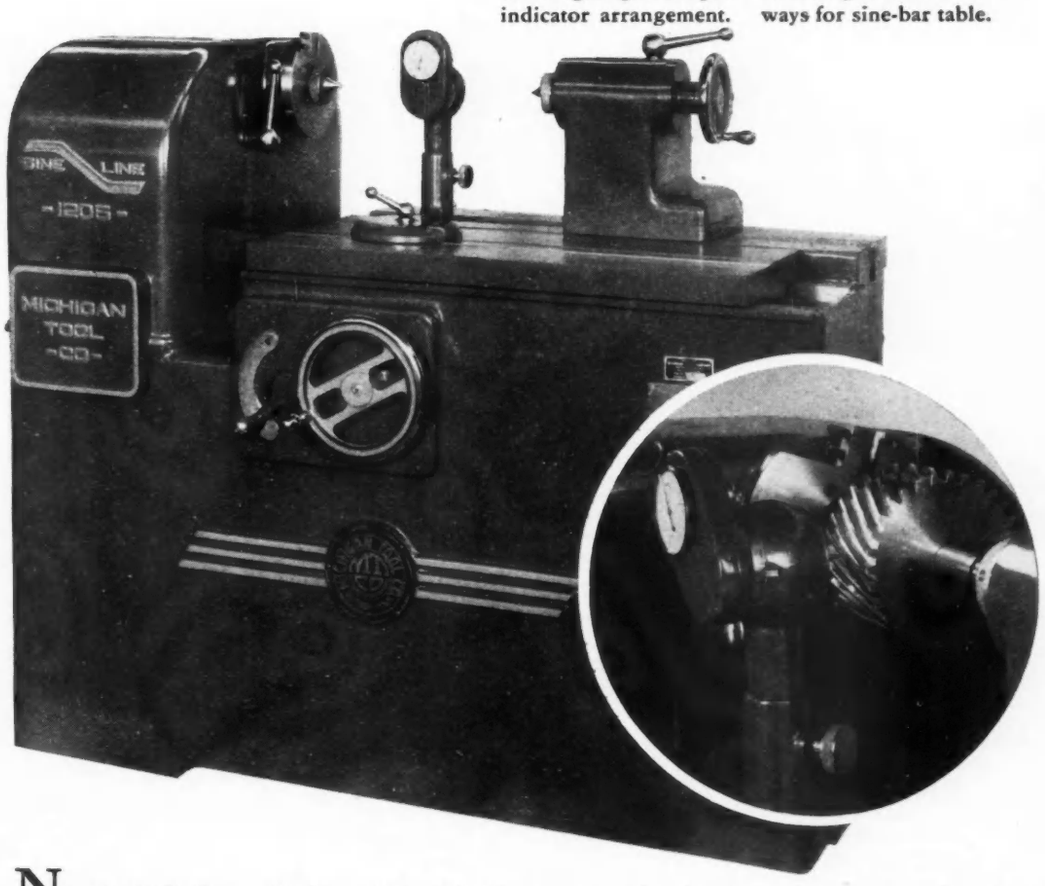
LEADS *from* ZERO *to* INFINITY

1 UNIVERSAL—no master rolls or discs or lead screw required.

2 CONVENIENT—all adjustments at working height. Simple indicator arrangement.

3 FAST—saves time in setup and checking of gears.

4 ACCURATE—Maximum rigidity. Narrow guides and wide ways for sine-bar table.



NOW ADDED to *Michigan* "Sine-Line" gear checking equipment is the new model No. 1205, a lead checker that will handle gears with leads from zero to infinity. Universal and flexible, it has been designed for maximum accuracy and speed in production and laboratory checking of gears.

Convenient to set up, all adjustments are at 'working' height while sine-bar setting can be checked with either gage blocks or micrometer. The indicator arrangement is extremely simple and easy to swing into contact, saving time in gear checking. The No. 1205, like other *Michigan* "Sine-Line" gear checkers, is designed for use, if desired, in combination with the *Michigan* gear-checking recorder unit.

We will be glad to send you complete information. Ask for Bulletin No. 1205-42.

MICHIGAN TOOL
7171 E. McNichols Company Detroit, U. S. A.

March Production Dropping Below 100,000

Cancelled March Civilian Truck Quotas Lower Output; Production Confined Almost Completely to Military Vehicles

With production in the automobile industry for the first half of March estimated at 45,000 vehicles, indications are that output for the full month will be below the 100,000 mark. Not since August, 1940, has monthly production fallen below 100,000 units. U. S. output for the first half of March was confined to trucks, the majority of them military vehicles. Canada still is turning out both passenger cars and trucks, but manufacture of the former is gradually tapering off and will be completed by early April.

Cancellation of March civilian truck quotas of 54,710 vehicles will result in much lower output for the month. The War Production Board forbade any building of medium trucks after February quotas were exhausted in order to conserve critical materials, especially rubber and steel. Manufacture of heavy trucks, those of 16,000 lb. gross vehicle weight and upwards, will be permitted until companies have exhausted their supply of semi-fabricated and fabricated materials on hand February 28. These must be stored without tires. However, heavy trucks comprise less than 5 per cent of U. S. production. Light truck output was halted February 10. Truck manufacturers also were allowed to carry their February quotas over into March for completion.

The new order means that such companies as Ford and Chevrolet will not make any more trucks for civilian use after their February quotas have been completed, as they do not make trucks in the heavier capacities.

Rationing of trucks "frozen" in dealer stocks, estimated at 196,000 by OPA, began March 9. Passenger car rationing had begun a week previously.

Romney Succeeds Johnson as AMA General Manager

George Romney has been appointed general manager of the Automobile Manufacturers Association, succeeding Pyke Johnson, who has resigned to become president of the Automotive Safety Foundation. Romney, Detroit manager of the AMA since 1939, is also managing director of the Automotive Council for War Production. Prior to that he represented the Aluminum Co. of America and the Aluminum Wares Association in Washington.

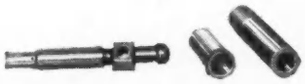
Johnson, vice president of the AMA for a number of years and general manager since 1939, will direct a campaign for tire and automobile conservation in his new position as president of the Automotive Safety Foundation. Paul Hoffman, former president of the ASF and president of Studebaker Corp., will become board chairman of the foundation. Norman Damon, director of the ASF, becomes vice president.

Used Tire Price Ceiling

Price ceilings for used tires and tubes have been issued by the Office of Production Management. Fixed prices are based on those prevailing between Oct. 1 and 15, 1941. The order establishes four categories, depending on the amount of rubber on the tires.

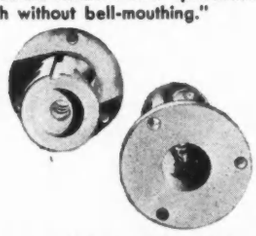
Enlarges Plant

Manufacturers Screw Products, Chicago, has acquired another 15,000 sq. ft. of floor space and installed additional screw equipment to increase production.

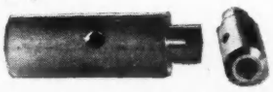


Airplane Engine Parts accurately honed to a super-smooth finish.

Aluminum Aircraft Link "produces high finish without bell-mouthing."



Gyroscope Balance Valve Body "saves production time in getting closer limits of accuracy."



Diesel Engine Fuel Injector Cylinder "So accurate that a piston can be fit within .00005 inch."

Aircraft Valve Tappet Roller—.0003" stock removal to produce highly polished surface.

Inner Bearing Ring "Accurately removes last 'tenth' of stock."

"A perfectly straight round hole with a mirror finish."

Drawing and Blanking Die "Saves time in producing smooth base metal finish."

Drill Jig Bushing "Increases sales appeal of product."

"Produced an extremely accurate and glass-like finish."

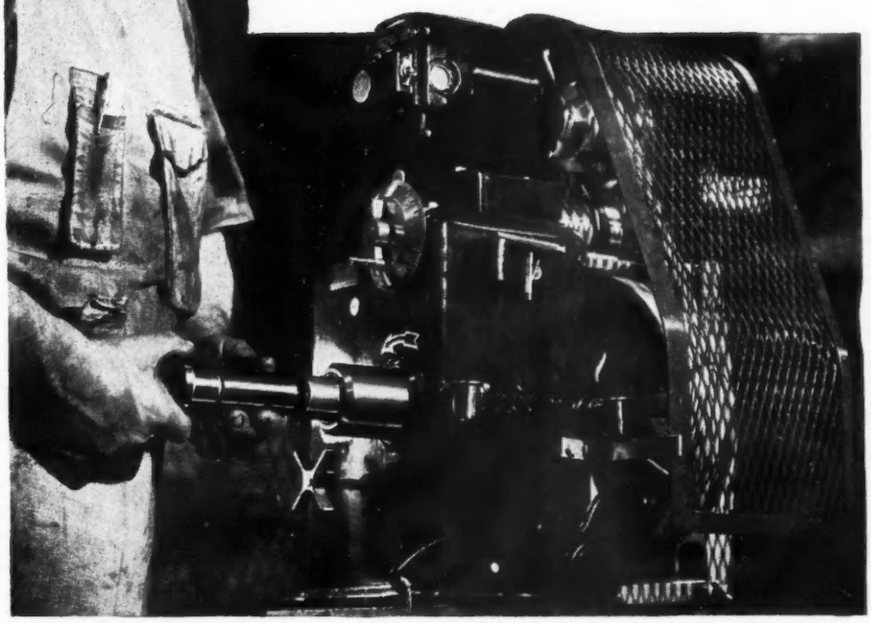
Sheffield Corporation

of Dayton, Ohio

Master Gagemakers —

—uses the Sunnen MA Precision Hone to remove .015" from the carburized surface of a .372" diameter hole 3½" long in a Gaging Spindle. Machine is also used on cylindrical rings.

Time saved over previous method — 50%.



Solve your problems of accurately finishing internal cylindrical surfaces with the SUNNEN Precision HONING MACHINE

● Sheffield says Sunnen cuts time 50%. Other manufacturers handling important new orders report similar production increases. By using the Sunnen Precision Honing Machine to accurately grind and finish internal cylindrical surfaces from .185" to 2.400", many manufacturers have been able to release heavy internal grinders for other work. These manufacturers have been amazed to find that such an inexpensive piece of equipment can produce such accurate work. Accuracy is guaranteed to within .0001", and has often been held to within .000025" in production work.

Skilled or experienced operators are not required. Any intelligent workman can produce precision workmanship with only a few hours' practice. You can shift your highly skilled labor to other jobs.

Saves set-up time—the Sunnen Precision Honing Machine can be set up and work located ready for honing in less than one minute.

Write for FREE *8-page Bulletin*

This new bulletin will give you complete information—or if you prefer, a Sales Engineer will be glad to call with his demonstrator and show you what this machine can do for you on your job.

SUNNEN

SUNNEN PRODUCTS CO. 7915 Manchester Ave., St. Louis, Mo. • Canadian Factory: Chatham, Ont.

Sloan Announces Car Re-purchase Plan

Alfred P. Sloan, Jr., board chairman of General Motors, does not hold out much hope for dealers participating in the war production program by undertaking to take subcontracts. In a special message to GM dealers, Sloan stated that the type of production which the corporation has been called upon to undertake involves such close tolerances in manufacture and such complicated specifications and is so highly technical in character that it is outside both the experience and the facilities of the average automobile dealer.

Production machinery and special tools, which would be necessary for such production, are unavailable. Sloan recognizes the fact that a few dealers might be able to utilize their space and manpower in subcontracts on less technical items if the machinery were obtainable. One highly successful Pontiac dealership in Detroit has merged with a machine shop and the former showroom has been converted into a busy work layout. This firm now has many subcontracts for armament work.

In order to help its dealers remain in business and stabilize their inventories, GM has agreed to repurchase any new and unused 1942 model passenger cars which they may have in stock. The divisions will take back these cars after April 1, paying the dealer's net cost, including transportation charges, plus an additional amount equal to 1 per cent of the list price or $15, whichever is lower, for each calendar month or major part thereof which the car may be held after Jan. 31. Any accessories will be taken back on a similar basis up to July 1; repair parts for 1942 models and the three preceding models also will be repurchased if undamaged.

To those dealers who decide to liquidate, GM may offer a partial settlement of losses incurred in the liquidation of leaseholds on the same basis as is provided in the present dealer's contract. Dealers who terminate their contracts under mutually favorable circumstances will be given first consideration as dealer replacements when normal automobile business is resumed again.

As a reward for those dealers who remain in business and accept the responsibility of maintaining service facilities for the duration, GM will extend them priority on shipment of cars for domestic distribution for a period of two years after production is resumed. After the manufacturers set aside a reserve of 15 per cent of the resumed production to meet changed conditions of demand, such dealers may purchase from their division the same annual percentage of the resumed production as they did in the 1941 model year plus a bonus of 40 per cent of such percentage, subject to the availability of cars.

General Motors is the only manufacturer so far to announce a repurchase plan from dealers on 1942 models.

Don't Stop
while grinding -
use an ARNOLD
AUTOMATIC
GAGE
Watch the Dial as you grind to size.
Stopping to gage while grinding is a needless waste of time. Neither is there any excuse for grinding below size and wasting stock. With an Arnold Gage on your grinder you watch the Indicator, and when you reach correct size the work is finished—to correct size. An Arnold hugs the work, positively, and yet sensitively with uniform pressure. Coolant or oil does not harm the gage. Hydraulic Mounting can be adjusted for lifting speed and pressure on the work. An Arnold Gage is an investment worth making. Write—
FEDERAL PRODUCTS CORPORATION
1144 EDDY STREET
PROVIDENCE, R. I.
ADJUSTABLE CALIPERS
Either inside or outside between faces can also be gaged.
Either inside or outside between faces can be gaged simultaneously with the diameter.
Above—Gage checks width and diameter of crankshaft bearing simultaneously.
Left—Gage is held out of way while loading ring gear in grinder.
FEDERAL
PRECISION MEASURING INSTRUMENTS
Chicago • Cleveland • Detroit • Hartford • Los Angeles • Milwaukee • Montreal • Muncie
New York • Philadelphia • Pittsburgh • Rochester • San Francisco • St. Louis • Toledo • Toronto • Windsor

Chemical Lighting for Emergencies

Walls and ceilings of cold "firefly light" made possible by newly developed phosphorescent chemicals, can now provide emergency lighting for ships, air raid shelters, and vital public buildings, according to Westinghouse engineers. Chemical lighting developed for blackouts and power failures, has proved in laboratory tests sufficient for ordinary movement in a darkened room.

An instantaneous flash of bright light like that from a photoflash lamp is sufficient to charge up a phosphor coated wall for as long as eight or nine hours. A wall 15 ft. long and 10 ft. high, for example, would radiate about seven and a half lumens of light. An ordinary 25-watt lamp gives off 260 lumens by comparison.

Discuss Post War Cars

Joseph Geschelin, Detroit Technical Editor, Chilton Automotive Publications, will address the Student Branch of the SAE at the University of Michigan on March 19, and the Muskegon Kiwanis Club on March 27.

READILY AVAILABLE...
THANKS TO INCREASED DEMAND

Paradoxical? Yes, but true. Torrington Needle Bearings are *available for prompt delivery on your priority orders now* because the demand for them has been increasing so steadily. Again and again, during the eight years since the Needle Bearing was introduced, we have had to expand our facilities to meet this mounting demand—until today *further* expansion is a comparatively simple matter.

But *why* this increasing demand? The reasons lie in the bearing's unique combination of advantages . . . low cost, small size, high capacity, ease of installation, efficient lubrication. These advantages are so easily demonstrable, so obvious, that they have led to thousands of applications for the Needle Bearing in virtually every branch of industry.

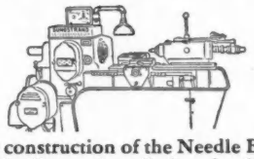
In fact, this bearing's potentialities are so evident that we have been able to anticipate and prepare for the increasing demand with a planned program of expansion. As a result our facilities are keyed to the requirements of Victory—and Torrington Needle Bearings can be supplied promptly for all essential needs.

Here is one way to guard against future production delays—incorporate the Needle Bearing in your designs now. Torrington engineers will help you adapt its advantages to your specific problem. For detailed information, write for Catalog No. 107.

THE TORRINGTON COMPANY
TORRINGTON, CONN., U. S. A. • *Estab. 1866*
Makers of Needle and Ball Bearings
New York Boston Philadelphia Detroit
Cleveland Chicago Los Angeles Seattle
San Francisco Toronto London, England

TORRINGTON NEEDLE BEARING

EASE OF ASSEMBLY

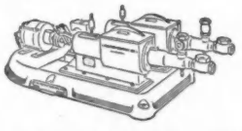


Unit construction of the Needle Bearing facilitates installation in Sundstrand Machine Tool Company's Model 8 Automatic Lathe. The bearing's high capacity in proportion to size permits anti-friction construction in a limited space, results in long service life with little attention.

SUNDSTRAND MACHINE TOOL

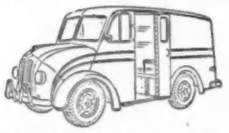
ELIMINATION OF WEAR

Bearing wear is reduced to a minimum by the use of Torrington Needle Bearings on crank pin and wrist pin of the Adjust-O-Feeder, designed for accurate proportioning of fluids. As a result, lost motion is entirely eliminated, and accuracy of proportioning is maintained.



% PROPORTIONEERS, INC. %

HIGH LOAD CAPACITY



The high load capacity of the Needle Bearing permits the use of relatively small sizes for heavy duty applications, permitting substantial savings in weight in aircraft and automotive applications. Typical instance is its use in ratchet assemblies on Divco-Twin Trucks.

DIVCO-TWIN TRUCK COMPANY

ADVERTISING

Forrest U. Webster, account executive at **MacManus, John & Adams,** Detroit, and former president of the National Industrial Advertisers Assn., has been ordered to active duty as a captain at the Fort Wayne Quartermaster Motor Base, Detroit.

Harlan Walker, formerly director of pictorial publicity on the Chevrolet account at **Campbell, Ewald & Co.,** is now a captain attached to the public relations department of the Army Air Corps at Wright Field, Dayton, Ohio.

MacManus, John & Adams, Inc., has been appointed as advertising counsel for Mergraf Oil Products Co., Inc.

U. S. Sending Herrington to India

Arthur W. S. Herrington, president of Marmon-Herrington Co., Inc., has been named a member of the U. S. advisory mission to India headed by Col. Louis Johnson. He will specialize on production of armored vehicles and automotive equipment. Henry E. Beyster, president of H. E. Beyster Corp., Detroit, also has been appointed a member of the mission. He will specialize in organization of plants for production.

Net Crude Rubber Supply By 1944 Only 65,000 Tons

The latest official figures for crude rubber supply and demand of the United Nations indicate that stock piles will be dangerously low by the summer of 1943, according to Leon Henderson in a statement before the Senate Committee investigating national defense activities. Mr. Henderson's figures (shown in the accompanying table) indicate that net stock piles remaining after 1944 will be only 65,000 tons.

UNITED NATIONS CRUDE RUBBER OUTLOOK

Supply	1942	1943	1944
Crude Rubber Shipments	434,000	135,000	98,000
Synthetic Rubber	25,000	300,000	600,000
U. S. Crown Guayule	.....	1,000	5,000
Total (Tons)	459,000	436,000	703,000
Demand			
U. S. Military Forces	*306,750	*462,750	*462,750
Lend-Lease, South American Export	.....	.....	.....
U. S. Civilian	*150,000	*123,750	*123,750
Rest of Non-Axis World	*198,750	*198,750	*198,750
Total (Tons)	*655,500	785,250	*785,250
Result			
Supply Minus Demand	196,500	349,250	82,250
Total Stocks at Beginning of Year	693,000	496,500	147,250
Net Stocks End of Year for Next Year (Tons)	496,500	147,250	65,000

* Showing effect of a 25 per cent reduction in demand which will be met.

Figures in the table are based on the assumption that rubber supplies from the Far East, which furnished 98 per cent of our crude, have been shut off indefinitely. Mr. Henderson believes "it will almost require a miracle to secure the amount of synthetic rubber —300,000 tons in 1943, and 600,000 tons in 1944—shown in the table. If the miracle doesn't occur, if the synthetic rubber plants aren't completed on schedule, our situation will be immeasurably worse."

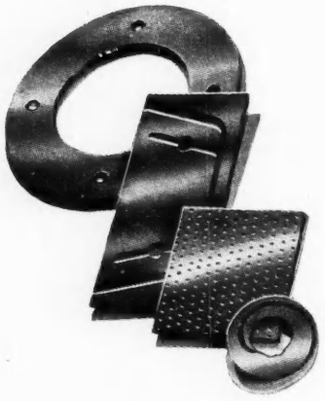
Commenting on the curtailment of civilian consumption of rubber, not including tires and tubes, Henderson showed that the consumption of 17,440 tons per month for the year ending March 31, 1941, has now been cut to 5500 tons. He maintained that under existing circumstances civilian uses must be cut an additional 2650 tons per month at least.

Production capacity of reclaim is set at 350,000 tons per year; for civilian use only about 170,000 tons will be available. Ordinarily 40 million passenger car tires plus camelback for recapping about 5 million more are required each year. We will now be able to meet only about one-seventh of the combined passenger car tire replacement and recapping demand.

Henderson further predicts that under favorable conditions "it will be possible to maintain in operation over the next three years a total of 7,500,000 passenger cars, including those belonging to a large number of defense workers."

NEW Bearing Metal Adapted to Many Uses

Pre-Cast Bearing PATENTED
Bronze on Steel

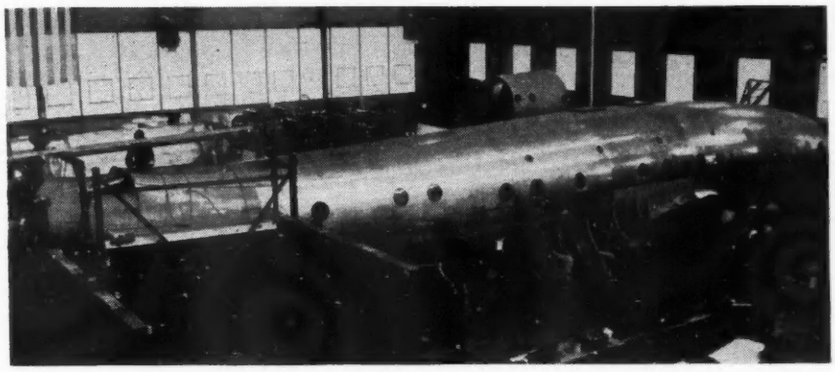


Washers, flat pieces or shapes can be produced exactly to your specifications. This includes oil holes, grooves, slots, indentations, etc.

Pre-Cast Bearing BRONZE ON STEEL was originally developed for thin wall, sleeve type bearings and bushings. The bearing qualities of bronze and the strength of steel enabled manufacturers to increase speeds and loads . . . to gain longer life and smoother operation . . . greater resistance to shock and to wear.

Manufacturers are now finding many additional applications for *Pre-Cast Bearing* BRONZE ON STEEL. It is an ideal metal for washers, stampings or other flat pieces such as guide strips on presses and shapers, door slides, brakes, etc. For such applications, we can furnish BRONZE ON STEEL in rolls up to 400 feet in length or as flat strips either plain or graphited. The maximum width is 5½ inches with their thickness, 1/32", 1/16", 3/32". BRONZE ON STEEL is an ideal substitute for rolled bronze. Write today for the complete story on BRONZE ON STEEL. It's FREE.

JOHNSON BRONZE
Sleeve BEARING HEADQUARTERS
625 S. MILL STREET • NEW CASTLE, Pa.



Lockheed Constellation

Construction of the new Lockheed Constellation for TWA is progressing rapidly at the Lockheed plant in Burbank, Cal. This is the first picture showing the enormous size of the plane which will carry 57 passengers and a crew of seven. Fitted with a sealed cabin the ship will be able, it is said, to fly 4000 miles at an altitude of 30,000 ft. Powered by four 2500-hp 18-cylinder Wright Cyclone engines, the plane will cruise at 283 mph; top speed will be about 350.

MEN . . . . . .

Robert D. Williams and **John A. Finley** have been named research engineers on the technical staff of Battelle Memorial Institute. Williams will assist in the Institute's welding research and Finley has been assigned to research in metallurgy.

Ralph V. Hunt, comptroller of Douglas Aircraft, has been elected a vice-president of the company.

V. C. Schorlemmer, vice-president of Vultee Aircraft, Inc., has been appointed senior officer under whose direction the Vultee field division will be operated.

Charles P. Hunt, formerly a member of the purchasing department of Douglas Aircraft, has been appointed purchasing agent for Menasco Mfg. Co.

Kenneth J. Wilson, formerly sales manager, has been appointed contract co-ordinator of Aircraft Components, Inc.

Federal Judge Frank A. Picard has appointed as directors of the newly reorganized Hupp Motor Car Corp. **Willard E. Rockwell,** board chairman of Timken-Detroit Axle Co.; **F. W. Marschner,** western manager of the New Departure Division of General Motors; **J. W. Rothmeyer,** Detroit consulting engineer; **Bigham Elben,** attorney, and **John E. Murphy,** who has been serving as trustee.

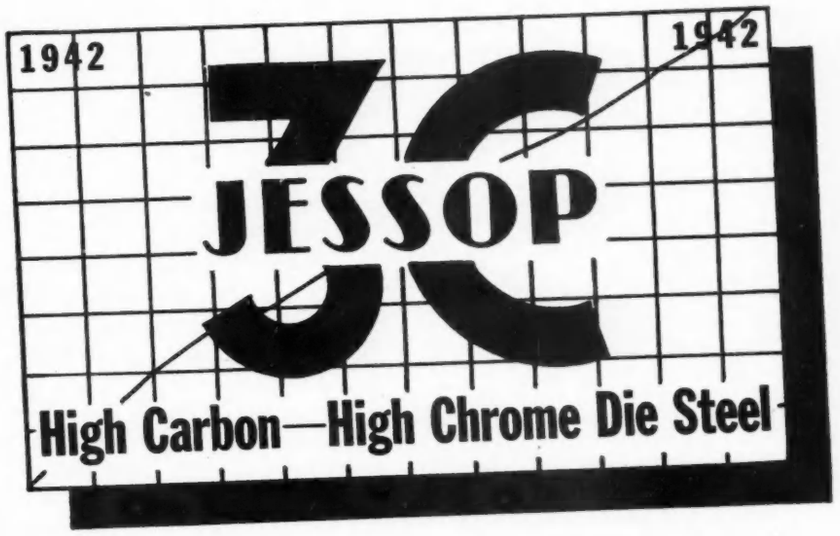
William Deacon, formerly in charge of shop planning on automotive products for AC Spark Plug Division of General Motors, has been named assistant production manager of the Dort Highway plant. **Jess Benner,** formerly in charge of shop planning for the machine gun dept., has been appointed assistant production manager for the Industrial Ave. Plant. **Robert Murphy** will succeed Deacon and **John E. McArthur, Jr.,** will take over Benner's former duties.

Edward Riley, general manager of General Motors Overseas Operations, has been elected a vice-president of the corporation. He succeeds **Graeme K. Howard,** formerly vice-president in charge of overseas operations, who has resigned to serve as deputy chief of the Motor Transport Division, Quartermaster Corps, U. S. Army.

George J. Newman, formerly factory manager of the Consolidated Aircraft Corp. parts plant at San Diego, Cal., has been named vice-president in charge of the new Fort Worth, Tex., division. **C. W. Perelle,** formerly general manager of Vultee Aircraft, Inc., field division at Downey, Cal., has been appointed vice-president in charge of production at San Diego. **Francis A. Callery,** a partner in Emanuel & Co., New York investment bankers, becomes vice-president in charge of finance.

Alvin P. Adams, formerly with Seaboard Airways, has been elected president and a director of Duramold Aircraft Corp., a subsidiary of Fairchild Engine & Airplane Corp. **Herbert V. Thaden** has been named vice-president of Duramold in charge of production. **Joseph H. Mehl** has been appointed assistant treasurer of Fairchild.

(*Turn to page* 144, *please*)



MEETS 1942 PRODUCTION NEEDS

Aviation has become America's number one mass production industry. Where only yesterday parts for airplanes were produced by the hundreds, they are now being turned out by the thousands and hundreds of thousands.

Fortunately, American metallurgists have developed tool and die steels possessing properties especially suited to mass production requirements. Such a steel is Jessop's 3C, a high carbon—high chrome die steel which will often wear ten times longer than straight carbon die steels. It is now being used extensively in dies for coining, crimping, cutting, drawing, extruding, forming, hubbing, punching, slotting, stamping, thread-rolling, trimming, and general blanking work.

Consider Jessop's 3C for your next tool or die application requiring high wear resistance or non-deforming qualities. Descriptive Bulletin 341 will be sent upon request.

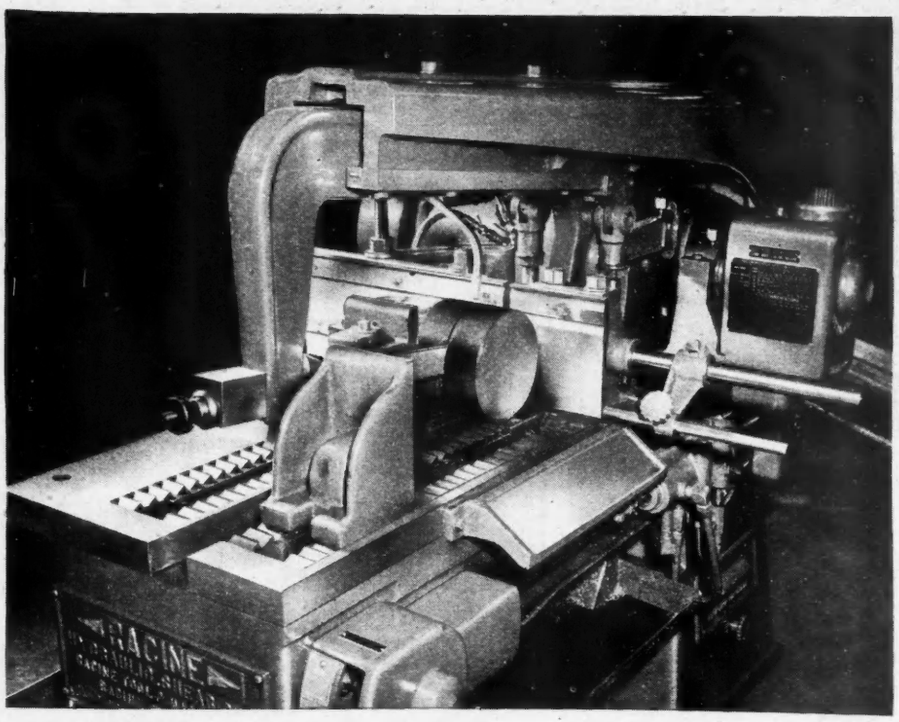
JESSOP STEEL COMPANY
General Offices and Works
WASHINGTON, PENNA., U.S.A.

JESSOP STEELS FOR AMERICA AND HER ALLIES

CARBON · HIGH SPEED · SPECIAL ALLOY · STAINLESS · COMPOSITE STEELS

BOEING FLYING FORTRESS

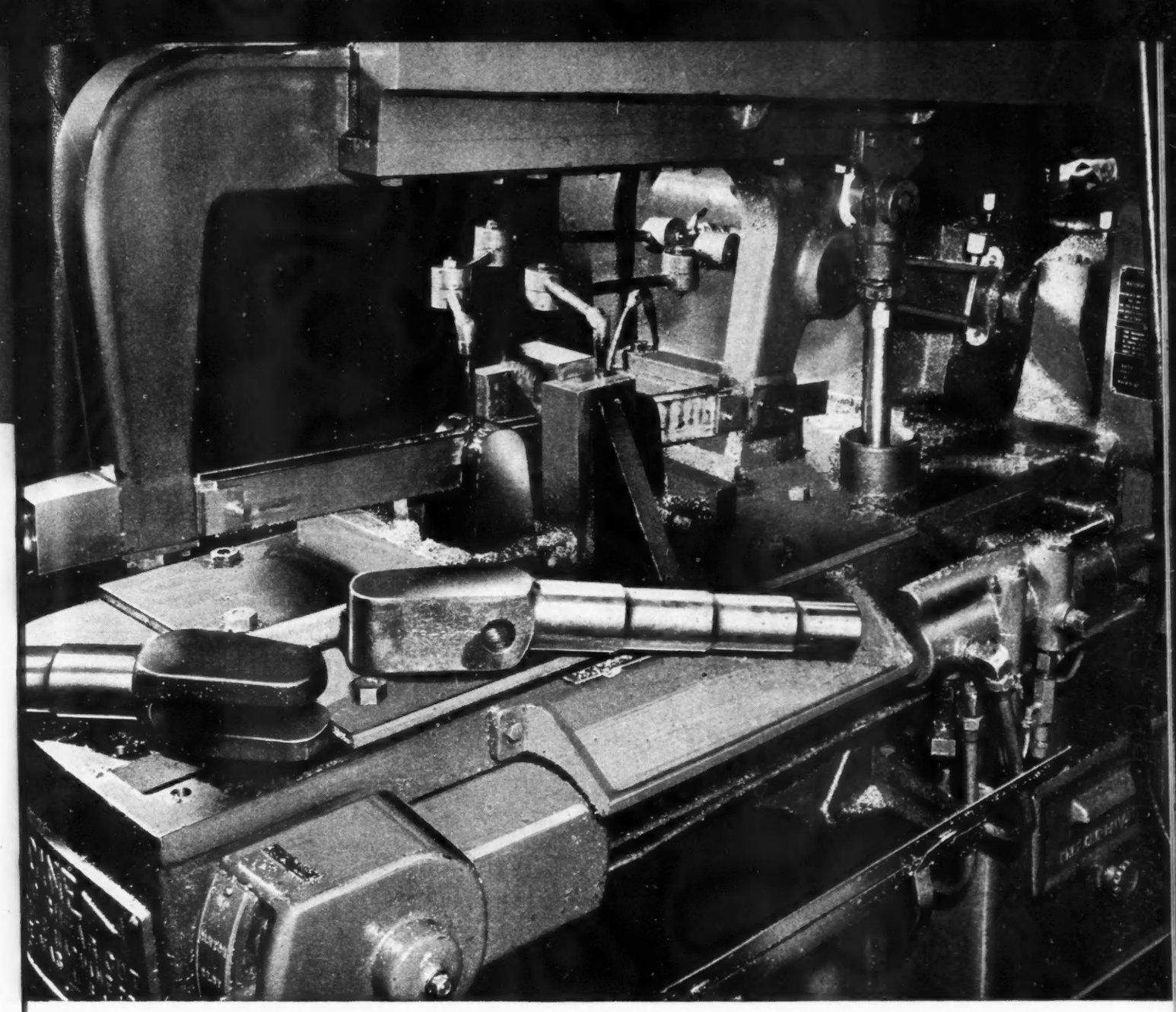
Another RACINE HYDRAULIC SHEAR CUT in the tool room of one of the many aircraft plants using RACINE metal cutting equipment. When this photograph was made, the machine was set up for cutting cast steel blocks.



RACINE Correct-cutting Principle results in real ACCURACY and positive PRODUCTION

The design of the recent RACINE HYDRAULIC SHEAR CUTTING MACHINES is so improved that their scope of applications is not only greatly widened, but the performance is now on a par with most modern high production machine tools. The one feature responsible for this advancement is the application of the principles of hydraulic feed and control of the saw blade throughout the cutting operation. Smooth oil-cushioned operation permits maximum production 24 hours a day, day in and day out, without strain. Both positive-progressive and flexible feeds are instantly available — single graduated dial controls feed settings. These features mean accurate and controlled cutting. Correct control of feeds and speeds, plus the progressive true-cutting action, results in such outstanding performances as illustrated at the right. Bulletin gives all details.

RACINE TOOL
1752 STATE STREET



AN INTERESTING AIRCRAFT JOB—a rather unusual application of the RACINE HYDRAULIC SHEAR CUT is the job illustrated above at the Boeing Aircraft Plant. Using two blades this Racine saw is rough cutting the centers out of wing terminals—two parts at a time—to make the yoke-shaped ends. Parts are chrome molybdenum steel forging, heat treated to between 32 and 36 Rockwell "C". Two wing terminals are located in the work-holding fixture by slipping an arbor through drilled holes and bushings. A guide block in the center of the fixture steadies the two blades.

RACINE

DISTRIBUTED BY

Canadian Fairbanks-Morse Co., Ltd.
and All Branches

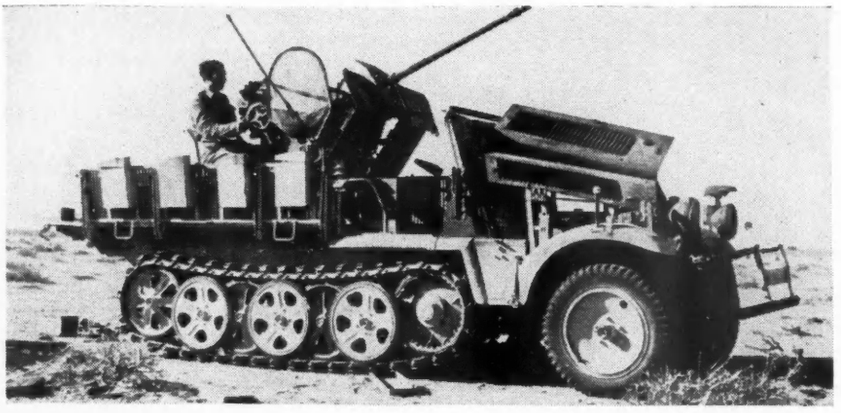
Moore Brothers Machinery Co.
Montreal

& MACHINE CO.

RACINE, WISCONSIN

Nazi Ack-Ack Serves British

This anti-aircraft unit, mounted on a standard German military truck, was captured by the British, who are now using it to blast its former owners. This truck chassis is somewhat lighter than another track-laying model which the Germans use as a troop carrier, some models of which are fully armored.



A VITAL FACTOR IN AIR DEFENSE

Processing of Magnesium Can Now Be Done Safely

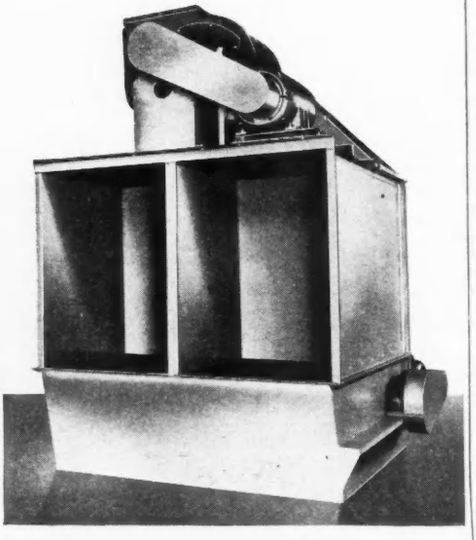
The New Hydro-Whirl Makes This Possible

At last the hazards attending the processing of magnesium have been removed. The development of the Hydro-Whirl principle of dust control opens the way to increased use of magnesium—a metal generally avoided because of its dangerous characteristics.

The Hydro-Whirl is a wet dust collector adaptable to many purposes —for either flexible shaft or stand grinding. Every industry—particularly the airplane industry—welcomes this new equipment because it meets a vital need at this time. It increases the measure of safety and broadens the possibilities of greater production.

The showing of such high efficiency on magnesium proves that it can perform with equal success with other dusts such as aluminum, iron, steel, etc.

Discuss your dust problems with our engineers



Industrial
SHEET METAL WORKS
Manufacturers of Hydro-Whirl Dust Collectors and Spray Booths, Ovens, Mechanical Washers and Industrial Ventilation Systems.

634 E. Forest Avenue Detroit, Michigan
New York Office—370 Lexington Ave.

Radio Replacement Parts to Be Available

When the radio manufacturing industry begins to convert its plants to war production of airplane detection equipment, and military transmitters and receivers, after April 22, there will be no more auto radios available. WPB shut off all civilian radio manufacture after this date, by an order announced March 7. However, this will still leave about 60,000,000 sets in operation, and permission has been granted to continue to make replacement parts and complete sets begun on or before the date of the freeze.

Military orders already placed for war radio equipment amount to more than $1,000,000,000. Orders of approximately $500,000,000 are held by the 55 companies affected by the curtailment order; the balance are held by companies not usually engaged in the manufacture of home radio sets. The following amounts of critical materials were used in 1941 radio production: 2100 tons of aluminum, 10,500 tons of copper, 280 tons of nickel and 70,000 tons of steel.

Curtiss School for Ladies

Faced with an impending shortage of labor later this year, the Curtiss-Wright Corp., Airplane Division, Buffalo, N. Y., has initiated a training school for women workers. More than 50 already are taking the course.

The company has announced that the women would probably go from the school into small-parts inspection jobs checking sizes, inspecting riveting and welding. Later, it was said they may go directly into riveting, sub-assembly work, drill-press operations and some final assembly work.

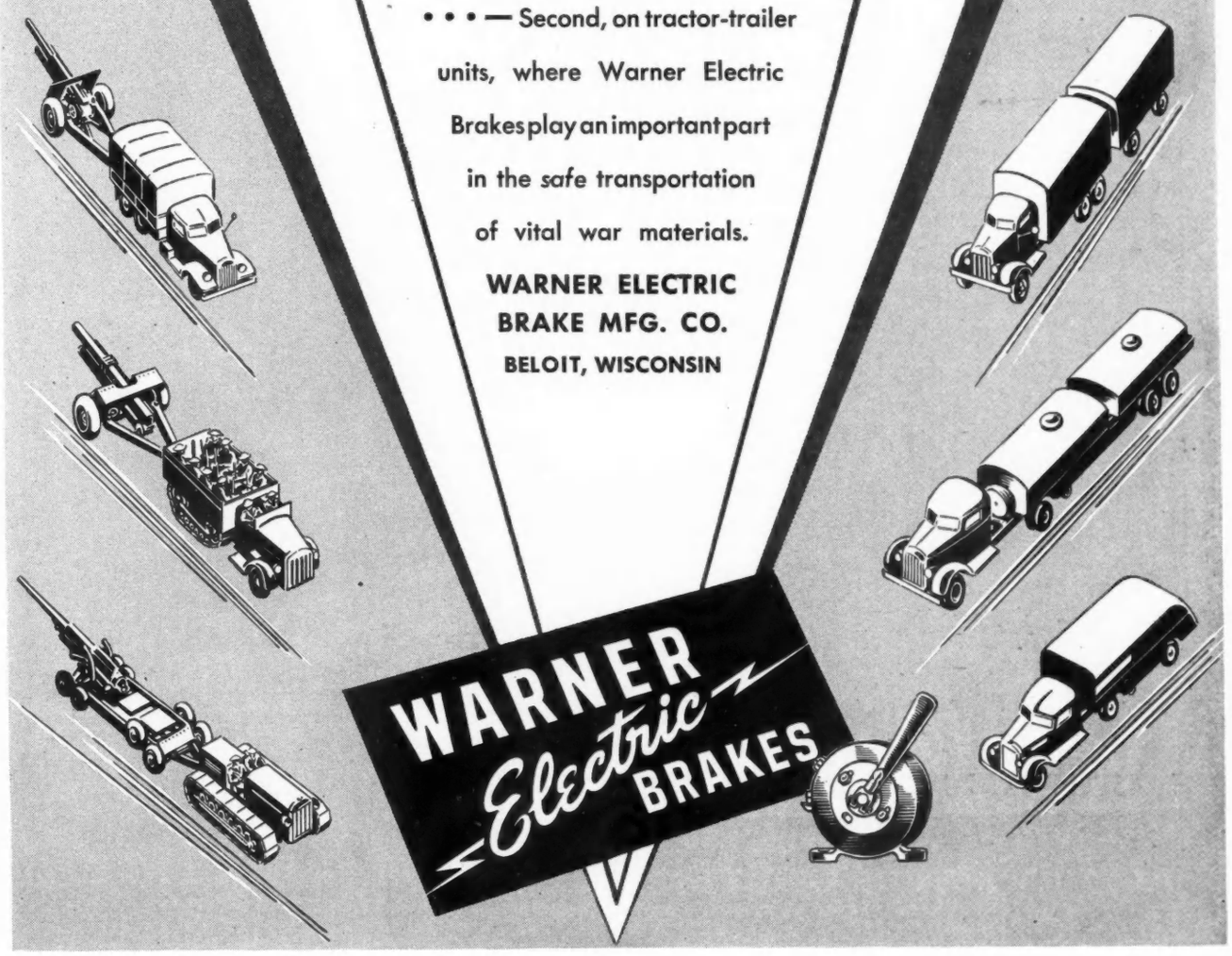
Atlantic Adds Tank Cars

In order to step up the flow of crude oil to its Point Breeze refinery in Philadelphia, The Atlantic Refining Company is preparing to put in service 1000 railroad tank cars to transport 17,000 barrels of crude oil daily from the East Texas, Louisiana and Mississippi fields.

Warner
ELECTRIC BRAKES
...Serve on Two Fronts

Today, Warner Electric Brake production is pledged to the needs of the nation's all-out "Victory" effort! • • • — First, on many types of U. S. mobile military equipment, where Warner Electrics are the *dependable* braking system. • • • — Second, on tractor-trailer units, where Warner Electric Brakes play an important part in the *safe* transportation of vital war materials.

WARNER ELECTRIC BRAKE MFG. CO.
BELOIT, WISCONSIN



MEN

(*Continued from page* 139)

Paul G. Hoffman, president of Studebaker Corp., has been awarded the honorary degree of doctor of humanics by Hillsdale (Mich.) College.

Norman C. Lee and **Luis de Florez** have resigned from the board of the National Aviation Corp. to go on active duty with the U. S. Navy.

Fred L. Black, formerly on the administrative staff of the Ford Motor Co., where he had charge of the Ford exhibits at the Chicago, Dallas, New York and San Francisco expositions, is now with the Office of Government Reports with headquarters in Detroit.

D. Edwin Gamble, vice-president and general manager of the Borg & Beck Division of Borg-Warner Corp., has joined the staff of the Ordnance Branch, Production Division, of the War Production Board. He is on leave of absence from his company.

Clarence O. Bell has been appointed manager of The Goodyear Tire & Rubber Co.'s Airplane Division of its Aeronautics Sales Department.

Alfred J. Fisher has been appointed director of the newly formed Aircraft Section of the Fisher Body Division of General Motors. **Del S. Harder,** general factory manager of Fisher Body fabricating plants, has been named director of the Tank Section, with **G. H. Kublin** as chief engineer. **G. S. Cashdollar,** manager of a Fisher Body Stamping Division, will be director of one Artillery Carriage Section, with **F. B. Harrington** as assistant and **Bert Cotter** as chief engineer. **E. R. Leeder,** formerly resident manager of the Fisher Body Pontiac Division, will be director of the other Artillery Carriage Section, with **H. D. Burnside** as assistant and **Albert Haberer** as chief engineer. **J. J. Wallbillich,** assistant general factory manager of fabricating plants, will be director of the Ordnance Specialties and Machine Section.

Edwin H. Brown, formerly manager and chief engineer of the engine and condenser section of Allis-Chalmers Mfg. Co., has been promoted to vice-president in charge of engineering and development.

Earl D. Osborne, president of Edo Aircraft Corp. and **John Bromley,** of Philadelphia, have been elected directors of Keilett Autogiro Corp.

Russell R. Vought has been elected vice-president and West Coast manager of United Aircraft Service Corp., a subsidiary of United Aircraft Corp.

Howard G. E. Smith, company attorney, has been elected to the board of directors of the Fedders Mfg. Co., succeeding the late Louis F. Fedders.

William A. Blees, general sales manager of the Nash Motors Division of Nash-Kelvinator Corp., has taken a leave of absence. He plans to volunteer for some war activity after his return from a vacation.

Clyde Vandeburg, formerly public relations director for Packard Motor Car Co., is on leave of absence as an assistant to Archibald McLeish, chief of the government's Office of Facts and Figures in Washington.

Anker K. Antonsen, chief engineer in charge of the Diesel Engine Division of Menasco Mfg. Co., has been appointed chief engineer in charge of the Aircraft Division as well as the Diesel Engine Division.

UP TO 300% MORE FACING LIFE

WITH *Exclusive, Patented* WEAR COMPENSATOR CLUTCH

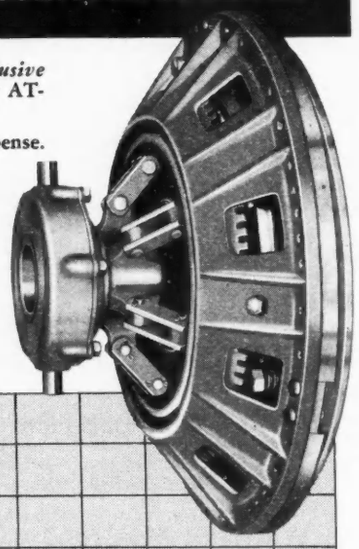
★ SENSATIONAL, NEW CLUTCH — with *exclusive* resilient element. *Introduced* and *patented* by ATWOOD!

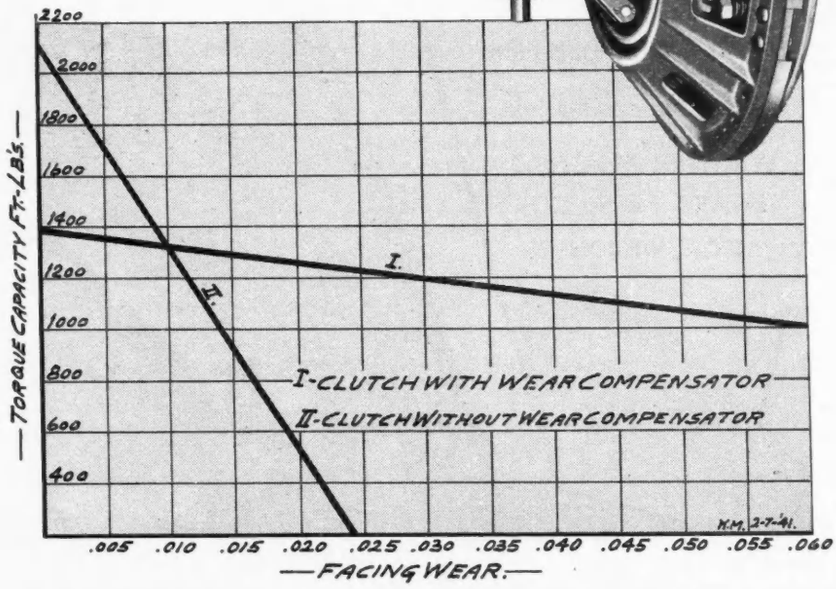
★ KNOCKS DOWN — field adjustments and expense.

★ FIXED HAND LEVER POSITION — never changes due to wear or adjustment.

★ LOWER ENGAGING PRESSURE — uniformly smooth engagement.

★ GET THE FACTS — send details of your problem. Let our engineers work with you.





ATWOOD-THELANDER

THE FASTEST GROWING NAME IN THE CLUTCH INDUSTRY

Another ATWOOD *Product*

AUBURN MANUFACTURING CO. AUBURN INDIANA

DIVISION OF ATWOOD VACUUM MACHINE CO., ROCKFORD, ILLINOIS

Builders of Automotive Equipment for Over 20 Years

Car Makers Can Sell Steel Stocks

Passenger car manufacturers with steel inventories have been given permission by WPB to sell sheet and strip steel, hot and cold rolled bars and other products to firms having a rating of A-1-k or higher in the case of stainless steel. Other steel may be sold on purchase orders bearing a rating of A-3 or higher. Sales also may be made to the Defense Supplies Corp., the Metals Reserve Co. or other corporations organized under the RFC, or by specific consent of the WPB Director of Industry Operations.

Sales made to preference rating bearers must be certified to the Distressed Stocks Unit of the WPB Iron and Steel Branch.

Exempt 91 Octane Gas

Aviation gasoline of 91 octane or higher and components and materials used in its production are exempt from price ceilings in a revised schedule issued by the OPA.

Wayne Joins OPA

Dewey C. Wayne has been appointed assistant director of the Office of Price Administration's division of transportation. He was formerly an executive member of the Middle Atlantic States Motor Carrier Conference.

Dwight B. Lee

Dwight B. Lee, 67, president of Motor Products Corp. until his retirement in 1934, died suddenly early this month at his home in Detroit.

MASTERS of PRECISION

CLEEREMAN Jig Borers and the men who build them are masters of precision. Design, selection of materials, fabrication, assembly, inspections, and tests are all performed with one purpose in mind—to build precision machines that will turn out precision work at low cost for many years after purchase.

Users know that CLEEREMAN men and CLEEREMAN Jig Borers are masters of precision.

Jim Le Clair—master craftsman—testing the precision of a CLEEREMAN Jig Borer spindle.

Bryant Machinery & Engineering Company
Sales Division: **Cleereman Machine Tool Co.**
400 W. Madison St. · Chicago, Ill., U. S. A.

CLEEREMAN

DRILLING MACHINES and JIG BORERS

PUBLICATIONS

A new bulletin covering **clutch applications** for indexing, free-wheeling and backstop operations has been issued by Morse Chain Co. Profusely illustrated, it presents principles, characteristics, advantages, and detailed construction of Morse Indexing and Free-Wheeling Clutch lines.*

Norton Co. is distributing semi-monthly a cartoon-style bulletin giving helpful hints on grinding. It is entitled **On the Grinding Line.***

The American Standards Association has announced the publication of its new list of **American Standards for 1942.** Requests for copies should be addressed to the American Standards Association, 29 West 39th Street, New York City.

A combination calendar and educational course on **machine tools and machine shop practice** has been issued by Continental Machines, Inc. The calendar contains 12 comprehensive lessons on metal working. It also gives a complete short course on machine tools and machine shop practice.*

American Phenolic Corp. has issued a new catalog, No. 65, covering products for the **radio, electrical and aeronautical industries.** The catalog is compiled in three sections to simplify the selection of the correct Amphenol product for a given application. Each section has a foreword page devoted to general information, technical data, and some of the variations from standard products which may be specified.*

The Plomb Tool Co. has announced publication of its 1942 catalog covering its complete tool line.*

The story of mahogany is told in a handbook prepared by George N. Lamb and published by the **Mahogany Asso., Inc.** It gives sources of this wood and describes its many uses and the methods and ways by which it can be employed in industry.*

Ampco Metal, Inc., has just issued a revised **Table of Bronze Specifications to Government Requirements** which lists in parallel bronze specifications that are largely used by government contractors.*

The George Scherr Co. announces a new 4-page folder describing the new **Magni-Ray,** an illuminated magnifier especially developed for close inspection of all parts entering airplane construction.*

A bulletin on the **Wright Speedway Electric Hoist** has just been published by Wright Mfg. Division, American Chain & Cable Co.*

Revere Weights and Data Handbook has just been issued by Revere Copper & Brass, Incorporated. Copies may be obtained by writing to the company at 230 Park Ave., New York City.*

Cambridge Precision Instruments are described and illustrated in List CEC issued by the Cambridge Instrument Co.*

The George Walker Co. has isssued a new folder describing its complete line of **Gripmaster Strain Reliefs** and their adaptability to cord and cable applications.*

* Obtainable through editorial department. AUTOMOTIVE and AVIATION INDUSTRIES. Address Chestnut and 56th Sts., Philadelphia. Please give date of issue in which literature was listed.

Snow Buggy

This enterprising Yankee, a rural mail carrier in Vermont, found a unique solution to a pressing problem. He purchased these discarded airplane tires from a dealer in Minneapolis, fitted them on 16-in. wheels, and set out to put the mail through. According to latest reports, he hasn't been stuck once.

EVERY MINUTE that can be saved on the production line is another nail in Adolph's coffin. We will be glad to send an experienced representative to show you how to save time on die, spar, cowl, propeller sanding, weld clean-up, etc. "Sandy" will do a great job for your production or maintainance department.

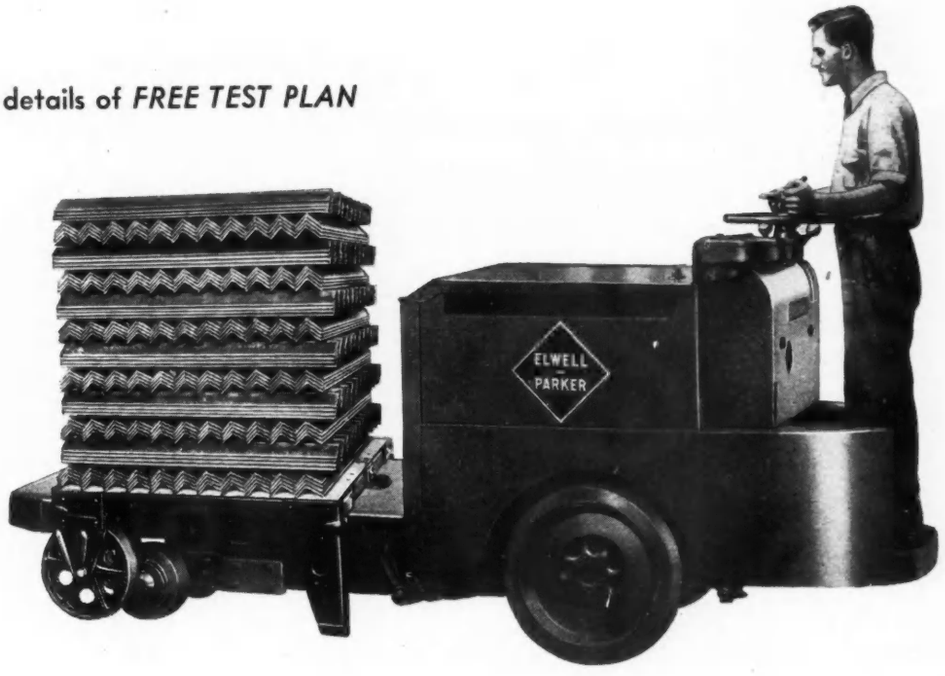
"KEEP THEM FLYING!"

615 W. Washington Blvd. Los Angeles, Calif. • **STERLING TOOL PRODUCTS CO.,** 385 E. OHIO STREET, CHICAGO, ILL. • 74 Wellington St., S.W. Toronto, Canada

The TURNER SHOP SYSTEM

PORTABLE BIN
(interlocking Bin Sections
on Transport) Expands
vertically as required.
Saves Floor Space, Equipment & Labor

Write for
CATALOGUE and details of *FREE TEST PLAN*



Movable with
POWER LIFT-TRUCK,
CRANE, TRACTOR,
or hand JIMMY

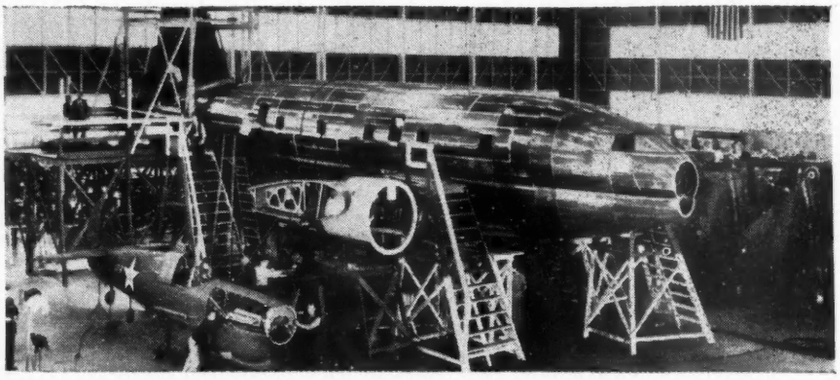
FACTORY SERVICE COMPANY

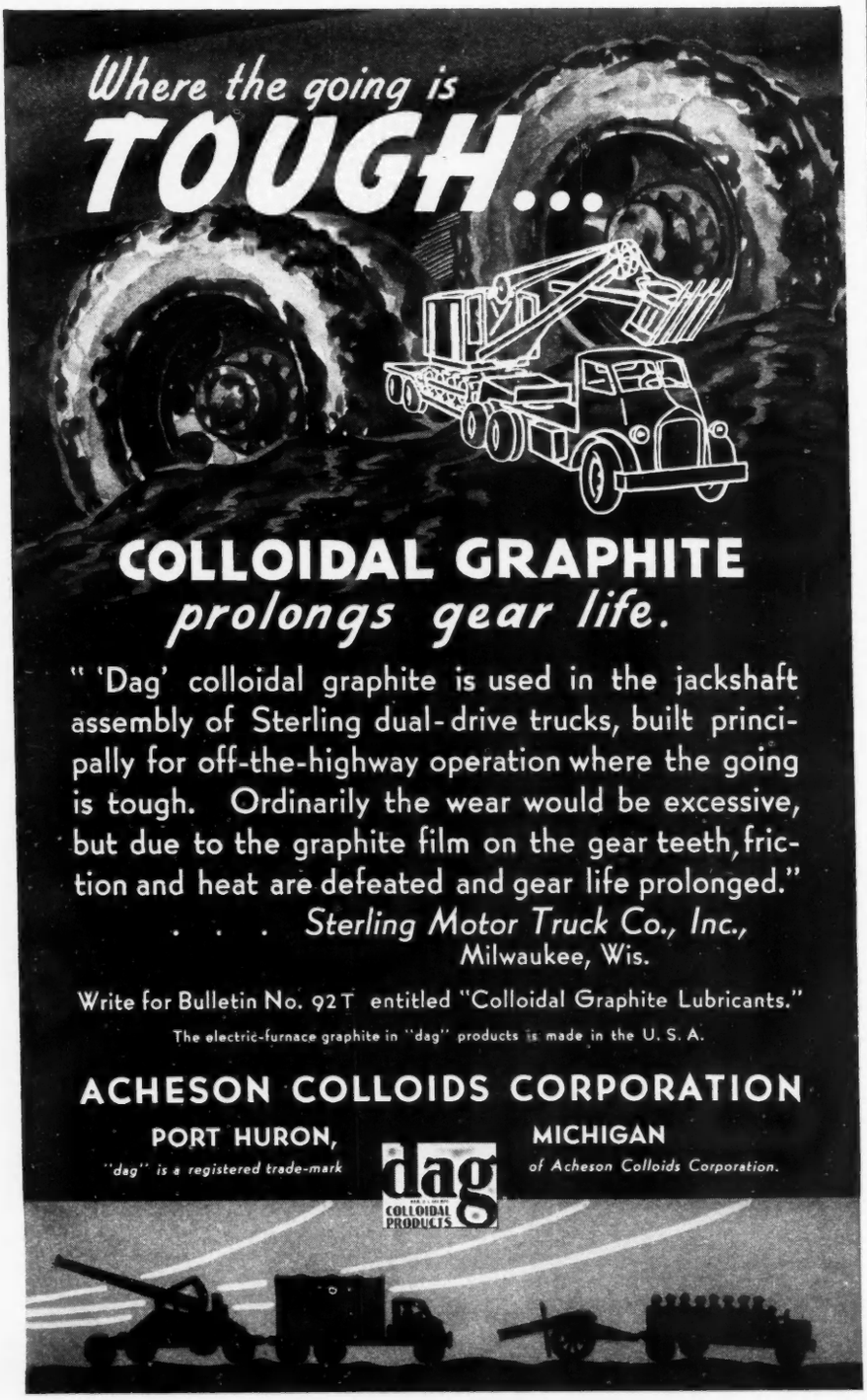
4623 N. Twenty-first Street

MILWAUKEE WISCONSIN

Curtiss Transport Nears Completion

Built around the design of a commercial plane, this giant 25-ton Curtiss Condor transport, the C-46, will soon be delivered to the U. S. Army Air Corps. With a top speed almost equalling that of a twin-engine bomber, the plane will carry "many more than thirty-six fully equipped infantrymen." Provisions have also been made for carrying light field artillery and small military vehicles.




Where the going is
TOUGH...
COLLOIDAL GRAPHITE
prolongs gear life.
" 'Dag' colloidal graphite is used in the jackshaft assembly of Sterling dual-drive trucks, built principally for off-the-highway operation where the going is tough. Ordinarily the wear would be excessive, but due to the graphite film on the gear teeth, friction and heat are defeated and gear life prolonged."
. . . Sterling Motor Truck Co., Inc.,
Milwaukee, Wis.
Write for Bulletin No. 92T entitled "Colloidal Graphite Lubricants."
The electric-furnace graphite in "dag" products is made in the U. S. A.
ACHESON COLLOIDS CORPORATION
PORT HURON, MICHIGAN
"dag" is a registered trade-mark
dag
COLLOIDAL PRODUCTS
of Acheson Colloids Corporation.

Business in Brief

***Written by the Guaranty Trust Co. New York, Exclusively for* AUTOMOTIVE AND AVIATION INDUSTRIES**

Business activity as a whole fluctuates narrowly at levels slightly below the recent peak. The seasonally adjusted index of *The New York Times* for the final week of February stands at 136.7 per cent of the estimated normal, as against 133.7 for the preceding week and 123.0 a year ago. The unadjusted index of *The Journal of Commerce* for the same period is 122.3 per cent of the 1927-29 average, as compared with 122.7 a week earlier.

Department store sales for the week ended Feb. 28, as reported by the Federal Reserve Board, were 18 per cent larger than in the similar period a year ago. Total sales in 1942 to that date were 27 per cent above last year's comparable figure.

Railway freight loadings increased contra-seasonally during the final week of February, totaling 781,419 cars, 6824 above the figure for the preceding week and 3.3 per cent above that a year ago.

Bank debits in leading centers during the thirteen weeks ended Feb. 25 were 17 per cent larger than in the corresponding period a year earlier.

Electric power production during the week ended Feb. 28 was slightly smaller than in the preceding week but was 13.9 per cent larger than a year ago. This gain compares with one of 14.7 per cent a week earlier.

Bituminous coal production in the same period averaged 1,883,000 tons daily, as against 1,822,000 tons for the preceding week and 1,794,000 tons for the corresponding period last year.

Crude oil production during the final week of February averaged 4,015,650 barrels daily, 61,700 barrels below the figure for the preceding week and 86,150 barrels below the average recommended by the Office of the Petroleum Coordinator for last month.

Business failures during the week ended Feb. 26, according to the Dun & Bradstreet report, numbered 215, as against 239 in the week before, and 305 a year earlier.

Professor Fisher's index of wholesale commodity prices for the week ended March 6 stands at 103.4 per cent of the 1926 average, as against 103.1 a week earlier and 85.9 a year ago.

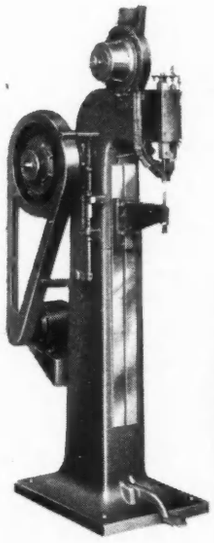
Member bank reserves rose $314 million during the week ended March 4, mainly as a result of a decline of more than $500 million in Treasury deposits with the Federal Reserve banks.

A COMPLETE LINE OF AUTOMATIC RIVET SETTERS

For Aircraft Production

We also manufacture a full line of INDUSTRIAL Single and Multiple Automatic Rivet Setters

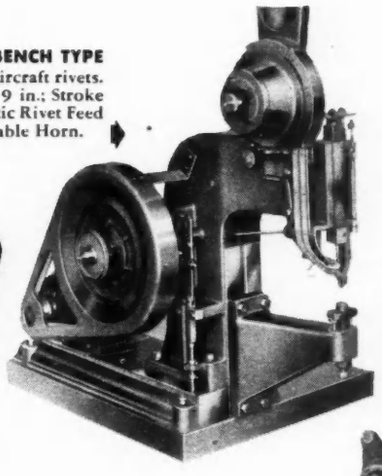
THROAT DEPTH RANGE FROM 6" TO 45"

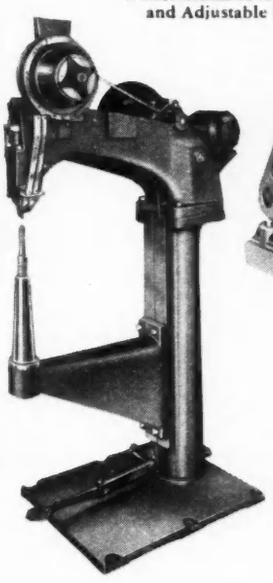


MODEL 121 FLOOR TYPE
Sets 3/16 in. aircraft rivets. Throat depth 9 in., Stroke 2-2½ in.; Automatic Rivet Feed and Adjustable Horn.

MODEL 90 FLOOR TYPE
Sets 3/16 in. aircraft rivets. Throat depth 12 in.; Stroke 2-3¼ in.; Automatic Rivet Feed and Adjustable Horn.

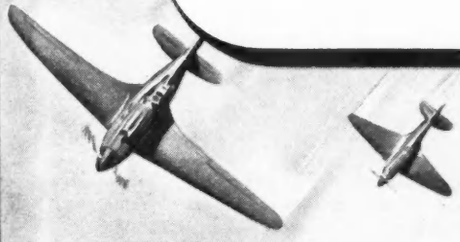
MODEL 71 BENCH TYPE
Sets 3/16 in. aircraft rivets. Throat depth 9 in.; Stroke 2 in.; Automatic Rivet Feed and Adjustable Horn.





MODEL 140PT POST TYPE
Sets 3/16 in. aircraft rivets. Throat depth 24 in.; Stroke 2-3 in.; Posts 6 to 18 in.; Automatic Rivet Feed and Adjustable Horn.

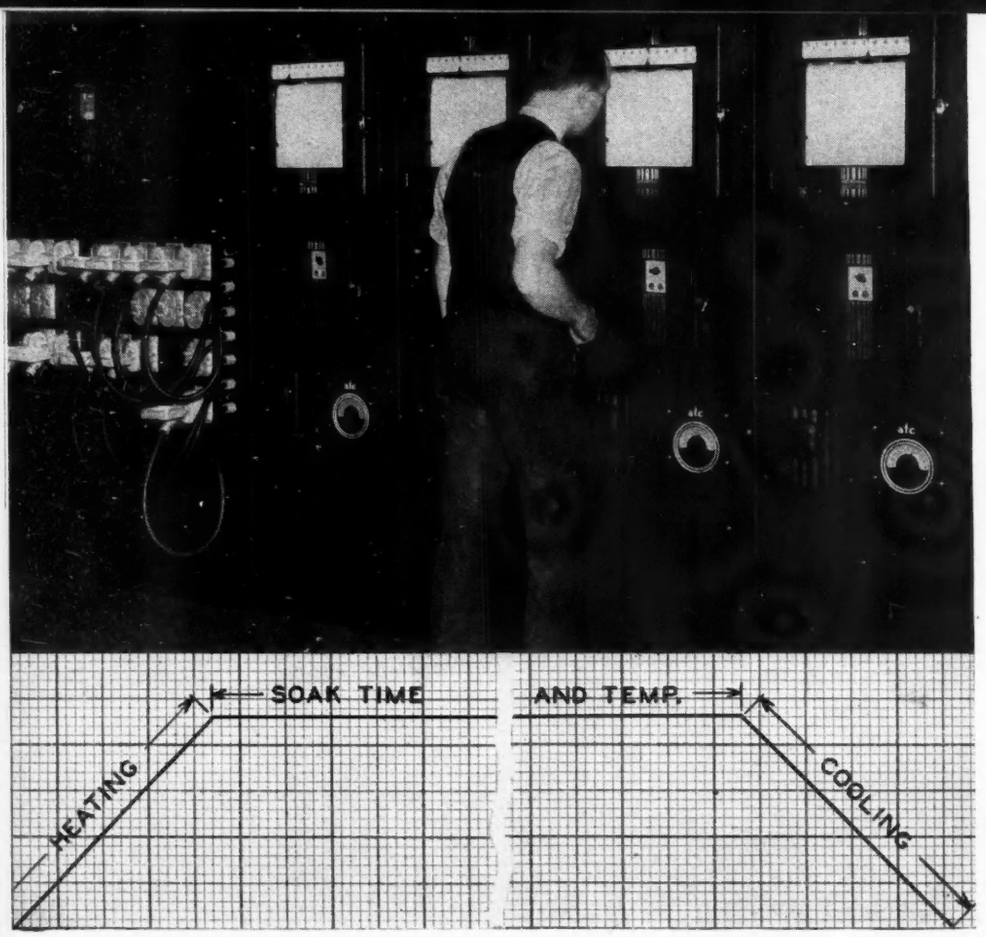
MODEL 150 FLOOR TYPE
Sets 5/16 in. aircraft rivets. Throat depth 45 in.; Stroke 2-4 in.; Automatic Rivet Feed and Adjustable Horn.



WE'RE ready to help speed up airplane construction with a complete line of eleven machines for automatic setting of aluminum aircraft rivets. Throat depths: 6, 8, 9, 12, 24 and 45 inches. Production rates, up to 2400 rivets per hour . . . The clinch of automatic set rivets by Chicago Rivet Machines will meet all requirements of army and navy specifications . . . Our riveting production experts will be glad to make specific recommendations for your particular needs. To save time, please send blue print or sample assembly when inquiring.

Chicago RIVET

CHICAGO RIVET & MACHINE CO., 9614 West Jackson Blvd., BELLWOOD, ILL.
(Chicago Suburb)



Program Control Panel of Micromax Pyrometers. It regulates the annealing, in Wilson cover furnaces, of steel strip and wire for such things as cartridge clips, rifle springs, mask parts and quantities of other defense items. In starting a batch, a controller first uses on-off valve motion, in response to temperature of furnace tube; then it shifts to throttling (proportional position and floating) control, based on work temperature. The rate of heating, the rate of cooling, and the time of soaking, are automatically held as set, unless user switches off these features.

WANT TO "BEND" A TEMPERATURE For Better Heating of War's Matériel?

Program Control is one of the newer ideas now drafted by war industries to help secure the fast, accurate, automatic heat-treatment required by so much war matériel.

Program Control is an improvement over the usual control, which considers only the maximum or soak temperature; because Program Control regulates the rates of heating and cooling, as well as the maximum. The record on the pyrometer chart rises at any desired rate, "bends" at the desired soak temperature, holds the soak as long as is specified, and then "bends" down again into a controlled cooling cycle, to complete the program which will best fit the product for war's needs.

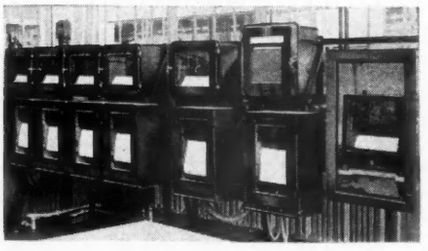
In this strenuous "temperature-bending", various Micromax characteristics are important, but possibly the most useful one is its "micro"-responsiveness. Micromax acts with superior speed-plus-precision on the *small* fluctuations of temperature. Even before these fluctuations are big enough to show on the chart—therefore, even before the best furnace operator could act—the Micromax acts. This micro-responsive handling of tiny changes heads off the big swings—throttles them so that they never develop. Micromax holds temperature with the steadiness needed for uniformity of product.

Micromax Program Control uses standard instruments, grouped at our plant to meet the individual need. If you have a problem along such lines, we'll be glad to try to help in its solution.

Micromax Pyrometers Are Centralized At Rock Island

Practically all heat-treating processes in the Rock Island Arsenal are provided with the latest type of automatic control, no expense having been spared to assure a close check on heat-treating operations. There are appproximately fifty Micromax potentiometer controls, supplied by the Leeds & Northrup

Above: Some of the Micromax Pyrometers controlling Rock Island's heat-treats.
Below: A battery of older L&N Controlling Pyrometers still working dependably and accurately.



Company. Armor plate and forging furnaces are equipped with a Micromax Rayotube and a Micromax electric proportioning control, and there is a large stress-relieving furnace in the Welding Shop which is supplied with a Micromax electric proportioning control.

Reprinted from "Machinery"

Thanks, "Anon"

To the several hundred men, most of them anonymous, who recently helped us with a questionnaire, we take this way of expressing our sincere thanks. These gentlemen received cards which they were asked to fill in and return unsigned, ballot-wise, regarding one of our advertising messages, and we're very grateful for their help.

We asked nothing about the merits of L&N products, and for that reason especially appreciate the correspondents who went far out of their way to give us a back-pat. "One of the greatest wonders in the steel mill today is L&N instruments" says one user. And one of the biggest furnace manufacturers says "Don't know how you could improve on (Micromax) instruments—they are 'tops'."

"All our instrument men" keynotes one good friend "believe L&N are the best pyrometers." And another says "I like your instruments because you make them so easy for glance reading." And so on, far beyond the limits of the space at our disposal.

Thanks again, friends.

Jrl Ad ENT-0600C(44)

LEEDS & NORTHRUP COMPANY, 4966 STENTON AVE., PHILA., PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

CENSORED

An exclusive feature prepared by the London correspondent of AUTOMOTIVE AND AVIATION INDUSTRIES, M. W. Bourdon.

No more permits are to be issued by the Ministry of War Transport for the purchase of buses built from "frozen stock," owing to available supplies of material from this source having been exhausted. It was originally estimated that this material would enable 600 double-deck and single-deck buses of pre-war design to be completed by various manufacturers, but this figure has proved to be somewhat optimistic.

* * *

In Parliament a Government official said that, although reclaiming facilities in Britain were considered satisfactory at the moment, the question of sending scrap rubber to America for reclaiming was under consideration, and that the new department was already in touch with reclaimers in U.S.A. with the object of pooling knowledge as to the best methods.

Grinding Them Out

At the Santa Monica, Cal., plant of the Douglas Aircraft Co., military planes are being produced with the aid of production machines such as this Norton cylindrical grinder used for grinding pistons for front-wheel retracting mechanisms, brake collar assemblies, etc. The illustration shows the finish grinding of an assembly for the tail skid shock strut.

Passenger Car Price Schedule Modified

Several changes in the maximum price schedule for 1942 passenger automobiles, of minor importance to the public, but of considerable interest to dealers, were announced today by Price Administrator Leon Henderson.

The revisions, in the form of Amendment No. 1 to Price Schedule No. 85, include:

1. When standard equipment is removed from a car at the factory, the dealer now can limit his deduction from the maximum selling price to the amount by which the manufacturer reduced the wholesale price of the car to him. If the manufacturer did not allow the dealer any deduction from the wholesale price, the dealer is not required to reduce the maximum retail price. Formerly, when standard equipment was removed at the factory, the schedule required the dealer to deduct the retail value of the removed equipment from the maximum selling price of the car.

2. When standard equipment is removed from a car by the dealer, according to the new amendment, he must deduct from the maximum retail price of the car a sum equal to 75% of the price he would have realized had he sold the removed equipment separately on October 15, 1941.

3. Manufacturers are now required to reduce the wholesale selling price of a car from which standard equipment has been removed by an amount not less than the cost of such removed equipment to the manufacturers.

4. Method by which a dealer can compute the Federal excise tax on a particular car is spelled out to mean the amount of the tax that the dealer paid to the manufacturer. The schedule continues to permit dealers to add the Federal excise tax to the selling price of the car.

5. Manufacturers' list prices are added to the schedule for three 1942 Chrysler cars that were omitted from the original list, i.e.:

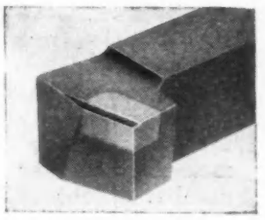
Model No. C-37	
4-door sedan	$2,815
7-pass. sedan	2,915
Limousine	3,065

6. Manufacturer's list prices of two Ford models are raised by $10.00 each to correct an error. These are the Super Deluxe 6, Convertible Coupe, now priced at $1,080; and Super Deluxe 8, Convertible Coupe, now priced at $1,090.

How the Greater Hardness of KENNAMETAL

INCREASES PRODUCTION
REDUCES TOOL COSTS

THE Rockwell hardness of a tool material is not a complete indication of its ability to resist wear. A KENNAMETAL tool tip of the same Rockwell hardness as another carbide will actually machine more pieces per tool grind and last longer because of the greater hardness of the *individual particles* of tungsten-titanium carbide in the tip. This has been proven by comparative tests on jobs in production.



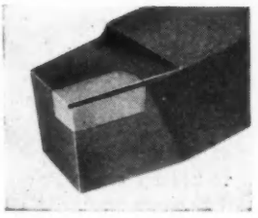
STYLE 21 TOOL

Here is what the greater hardness of KENNAMETAL means to users of turning, boring and facing tools for machining steel parts:

LESS DOWN TIME FOR REPLACING DULL TOOLS
Lathes and boring mills are kept productive during longer periods of time.

LESS TIME FOR GRINDING TOOLS
Eases the burden on men and machines in the grinding department.

LESS TOOL INVENTORY
Fewer tools needed to replace dull tools and tools which have worn out.



STYLE 11 TOOL

KENNAMETAL
The Accepted
STEEL CUTTING
CARBIDE

RECORD SALES PERMIT PRICE REDUCTION

Despite the fact that KENNAMETAL is harder, stronger, and more "crater-resisting" than other steel-cutting carbides, it costs no more. You need pay no extra to use the best. Write for Price List No. 7 containing new low prices on KENNAMETAL tools and blanks, effective Jan. 5, 1942. Do you have our Catalog No. 42?

SALES REPRESENTATIVES FROM COAST TO COAST

McKENNA METALS Co.
105 LLOYD AVE., LATROBE, PA.
Foreign Sales: U. S. STEEL EXPORT CO., 30 Church St., New York
(Exclusive of Canada and Great Britain)

Canadian Representatives: Kennametal Tools & Mfg. Co., Ltd., 24 Dunbar Ave., Hamilton, Ont.

Plant Conversion

(*Continued from page* 128)

reorganized its personnel in order to conduct its war activities more efficiently. New defense project sections have been set up within the division, each responsible for a particular type of war work. The Aircraft Section has charge of production of bomber airframe parts for the North American B-25, which is being assembled at Kansas City. About a dozen GM and Fisher Body plants at Detroit, Cleveland, and Memphis are engaged in this project. The Air Corps recently authorized the North American management to announce that a substantial number of bombers was being produced in February and the number produced in March would be several times greater than originally scheduled. This is the first bomber to reach quantity production under the program of the Automotive Committee for Air Defense, which had its inception in the fall of 1940.

The Tank Section of Fisher Body will operate the new final assembly plant at Grand Blanc, Mich., where M-1 60-ton and M-4 30-ton all welded tanks will be coming off the line by summer. Two artillery carriage sections have been set up to produce carriages for anti-aircraft guns slated for production at Flint and Grand Rapids. One of these is the latest type 4.7-in. anti-aircraft gun which army officials have described as capable of piercing the stratosphere.

Fisher Body's ordnance specialties and machine section will direct production of naval ordnance, including gun breech housings for which the division received the Navy "E" (for excellence) award last summer. It also will make vertical boring mills for use in the tank production program and diesel engine parts for the Navy. The Ternstedt Mfg. Division is making vitally needed cutting tools for airplane parts, gun parts and other armaments.

In addition to North American bomber parts, GM also is preparing to produce three different types of complete airplanes. Two of these are Navy dive bombers to be manufactured by the newly formed Eastern Aircraft Division, which embraces Fisher Body plants at Tarrytown, N. Y. and Baltimore; the Delco-Remy plant at Bloomfield, N. J.; the Ternstedt-Trenton plant at Trenton, N. J., and the Linden division at Linden, N. J. The other airplane is a long-range bomber for which GM is scheduled to receive a large contract.

That the conversion program already is getting results was indicated when the first pilot model of the M-4 all-welded medium tank came off the assembly line of the International Harvester Co. plant at Davenport, Ia. The M-4, which will supersede the present M-3, has a lower hull, is more streamlined and carries its major weapon, a 75-mm gun, in the revolving turret atop the tank rather than on the right hand side. The automobile industry, with Ford, General Motors, Chrysler, and International Harvester playing major roles, is counted upon to produce 90 per cent of the government's tank requirements.

The Hudson Naval Ordnance plant just outside Detroit, produced three times the number of Oerlikon 20-mm anti-aircraft guns in February than were called for by an earlier schedule and four times the January production. This plant also is turning out twin mounts for larger naval guns as well as other naval ordnance.

The need for cancelling 1942 new passenger car production from the standpoint of materials alone is illustrated by a recent computation of the War Production Board. Taking a normal three-million-car production year, enough steel and rubber is being saved for 125,000 medium tanks, enough tin is being saved to coat three billion cans in which to put food for the army and navy, enough aluminum is being conserved to make 42,857 fighter planes, enough nickel is being saved to make 150,000 tons of nickel steel for armor plate and projectiles and enough zinc, copper and brass is being saved to make more than seven billion brass cartridge cases for machine guns and semi-automatic rifles.

1/4" DIA. SOLID STEEL RIVETS

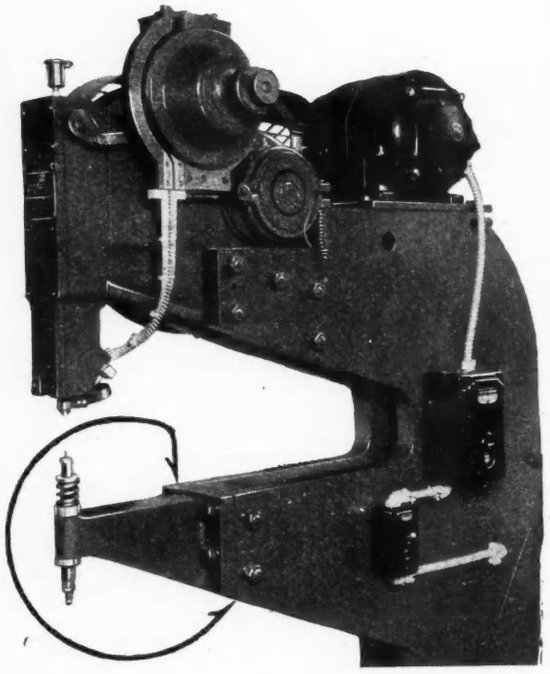
automatically fed and set

at rates averaging 1600 per hour

Not only does this RIVITOR handle the 1/4" rivets but also (with different tooling) as efficiently handles the lighter riveting down to 1/16" diameter rivets. This greater capacity meets requirements of a greater number of jobs.

Work requiring up to 36" throat depths can be accommodated.

The detachable horn permits simple application of a variety of lower tooling designs. This machine's sturdy, rugged construction throughout provides, with minor replacements, its extended life to make full use of its versatility for riveting production now and from (practically) now on.



"RS" RIVITOR

The average rate of 1600 rivets set per hour may be raised or in some cases lowered depending on the ease with which the work can be handled. The riveting stroke is made at the rate of 190 per min. (flywheel speed).

write for Bulletin R-4

THE TOMKINS-JOHNSON CO., 613 N. Mechanic Street, Jackson, Michigan

this is a **TOMKINS-JOHNSON** *product*

TAKE FRICTION OUT OF YOUR PLANT

SAVE MACHINES

PRESSED STEEL COMPANY: "On our 30 Toledo Presses, we have been using LUBRIPLATE Nos. 70, 105 and 130-A with outstanding success for several years. Our parts replacement expense during the past year on our presses was nil, which we entirely attribute to the use of LUBRIPLATE."

SAVE TIME

AIR TRANSPORT LINE: "We have very successfully used LUBRIPLATE No. 130-A in assembly of airplane parts. Its use not only facilitates our assembling work, but also affords protection against rust and corrosion."

SAVE COST

TOOL STEEL MANUFACTURER: "We find that since adopting LUBRIPLATE No. 4 about three years ago for use in all of our electric motor bearings, that consumption of lubricant has been reduced 90 per cent, temperature of motor bearings has decreased as much as 40 degrees F.—and consequently, maintenance costs have been lower."

SAVE WORRY

BLOWER MANUFACTURER: "Since adopting Ball Bearing LUBRIPLATE several years ago, our ball bearing replacement expense has been reduced upwards of 50%."

7 FACTS ABOUT LUBRIPLATE

1. *LUBRIPLATE produces an ultra-smooth, wear-resisting bearing surface.* **2.** *LUBRIPLATE reduces friction, thus lowering maintenance and power costs.* **3.** *LUBRIPLATE resists rust, corrosion and pitting.* **4.** *Most LUBRIPLATE products are white. LUBRIPLATE assures clean lubrication.* **5.** *LUBRIPLATE outlasts ordinary lubricants many times.* **6.** *LUBRIPLATE is economical—a little goes a long way.* **7.** *LUBRIPLATE is available in fluid and grease types for every need.*

DON'T let friction get in and sabotage your precious production machines that are so badly needed these days. Scored, damaged or burned-out bearings, costly repairs, idle machinery waiting for repair parts must have no part in today's vital need of more and more production.

Proper lubrication will keep this vandal "friction" out of your plant . . . lubrication that provides a tough load-bearing, long lasting film between all shafts and bearings, gears, chains and other contacting machine parts. LUBRIPLATE lubricants will do it. LUBRIPLATE is in a class by itself. It possesses properties not found in conventional lubricants.

Don't take our word as to the efficiency of LUBRIPLATE. Read this letter from one of the best known manufacturers of metal products in this country:

> "As you know, our machinery is of the high speed type, and with the constant increasing of the speed of these machines, lubrication has presented itself to be one of our biggest problems to solve before we can increase speed to a much greater extent. The results of our experience with LUBRIPLATE have been very gratifying as it has caused our machines to run much cooler, and the fact that LUBRIPLATE stays put and lasts longer, it has minimized our lubricating costs. LUBRIPLATE has done all you have claimed it to do."

With such conclusive evidence, don't you think it's your patriotic duty to investigate LUBRIPLATE? Our staff of engineers and dealers everywhere are at your service. Write, phone or wire today.

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
SINCE 1870
NEWARK, N. J. TOLEDO, O.

DEALERS FROM COAST TO COAST

LUBRIPLATE

ARRESTS PROGRESSIVE WEAR

Nelson's Appeal

(*Continued from page* 126)

meetings and explain the plans for production scoreboards, slogan contests, and similar proposals designed to boost output of war materials. The Detroit meeting, which is expected to draw more than 600 members of joint labor-management committees is scheduled for March 24.

The dispute between GM and the UAW-CIO over payment of premium pay for Saturday and Sunday work when it comes within the 40-hour week has been referred back to the parties by the War Labor Board for settlement under th econtract. The WLB first took jurisdiction of the dispute, which was expected to set a precedent for swing-shift operations, on February 6. The Labor Board stated that since the swing shift was in operation in GM plants by mutual agreement between the corporation and the union so that whatever rate of pay is finally decided upon will be retroactive, the matter should be referred back for settlement under the machinery set up by the contract. Negotiations are now in progress between the company and the union.

Hourly wage rates at the new Ford bomber plant at Willow Run will range from 95 cents to $1.60 per hour as a result of negotiations recently completed. The Willow Run rates coming under the Ford closed shop contract signed last June, are based on the rates for the same or comparable operations in automobile manufacturing in Ford plants. With an anticipated employment of 15,000 women workers at Willow Run, the agreement provides that they will receive the same rates as men when performing the same operation.

Committees Named to Study Production Problems

Product divisions have been organized by the Automotive Council for War Production and now are meeting periodically in Detroit for interchange of information on the armament items which they are manufacturing for the war program. Mutual production problems are discussed and representatives of plants already in production are able to save much time and effort by passing on valuable data to companies engaged in tooling up for similar production. This has been particularly true in the case of the aircraft engine and tank divisions.

Coordinating the work of the various divisions is Don Blanchard, of the SAE War Engineering Committee staff. Governing boards have been named for each division to facilitate the scheduling of meetings and the pooling of information. The ammunition division which includes representatives of more than 60 companies, expects to name a coordinator to handle the administrative details of the division.

Personnel of the governing boards of five of the divisions follow:

Aircraft Engine—R. N. Brown, Packard, Chairman; J. W. Hines, Studebaker; G. H. Bernard, Nash-Kelvinator; W. R. Gerber, Chrysler; H. N. Bean, Ford; R. J. Beebe, Cadillac; E. R. Jacoby, Continental; Hugh Dean, Chevrolet; C. A. Chayne, Buick.

Airframes — C. E. Bleicher, Chrysler, Chairman; W. E. Degroat, Ford; R. J. Scanlin, Hudson; A. J. Wettlaufer, Briggs; L. C. Hill, Murray; R. W. Clark, Hayes Mfg. Co.; E. W. Higgins, Woodall Industries; A. J. Fisher, Fisher Body; W. C. Potthoff, Goodyear Aircraft Corp.

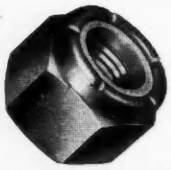
Ammunition—E. A. Clark, Budd Wheel, Chairman; P. C. Booty, International Harvester; G. F. Keyes, Mullins Mfg. Co.; L. W. Klein, Gabriel Steel; K. C. Plasterer, Olds; W. Steinwedell, Stewart-Warner; H. Swanson; Falls Spring and Wire; S. D. Den Uyl, Bohn Aluminum; H. E. Mead, Bohn Products.

Tanks, Armored Cars and Parts—D. S. Harder, Fisher Body, Chairman; Henry Ensign, ACF Co.; Dale Roeder, Ford; Jean Arnold, Cadillac; M. C. Evans, International Harvester; R. E. Ward, Mack; R. J. Emmert, Yellow T&C; E. J. Hunt, Chrysler.

Military Motor Vehicles, Truck Division—I. B. Babcock, Yellow T&C, Chairman; R. E. Burns, Ford; P. V. Moulder, International Harvester; T. R. Lippard; Federal; I. T. O'Brien, Chrysler; E. C. Fink, Mack; E. J. Bush, Diamond T; R. F. Black, White; R. A. Hutchinson, Studebaker.

Military Motor Vehicle, Bus Division—I. B. Babcock, Chairman; F. R. Fageol, Divco Twin Truck; A. F. Geisler, Ford; F. W. Feeney, Fitzjohn Coach; H. H. Young, Flexible Co.

A SELF-LOCKING NUT
for every
IMPORTANT FASTENING

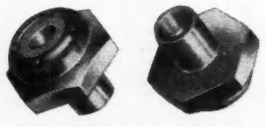


STANDARD-HEIGHT HEX NUTS
For all classes of bolted fastenings

CLINCH NUTS
For insertion in sheet metal

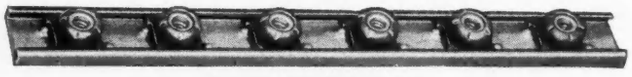
THIN HEX NUTS
For shear bolts with light tensile load

ANCHOR NUTS
For riveting to structures (numerous types available)



INSTRUMENT-MOUNTING NUTS
For attaching instruments to control panels

SPLINE NUTS
For insertion in formed shapes and castings



GANG-CHANNEL NUTS
For multiple blind-mounted fastening of removable panels and covers

ELASTIC STOP NUTS are made in more than 2500 combinations of type, size, material, finish, and thread system . . . to provide safe and economical bolted fastenings for any mechanical or electrical application.

Each nut embodies the Elastic Stop resilient non-metallic self-locking collar that assures a tight hold under all service conditions. *Sample nuts for testing are available without cost or obligation. Specify type, size, and quantity.*

Catalog contains a graphic explanation of the Elastic Stop principle, presents test and application data, illustrates uses, and lists the complete line of nuts.

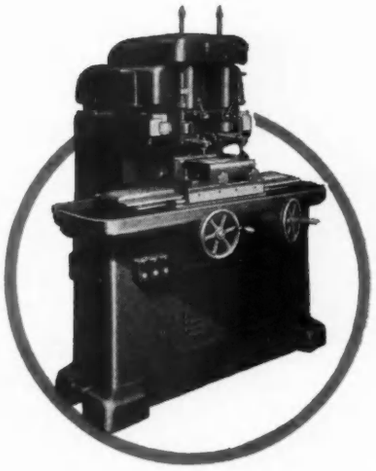
» Write for a copy

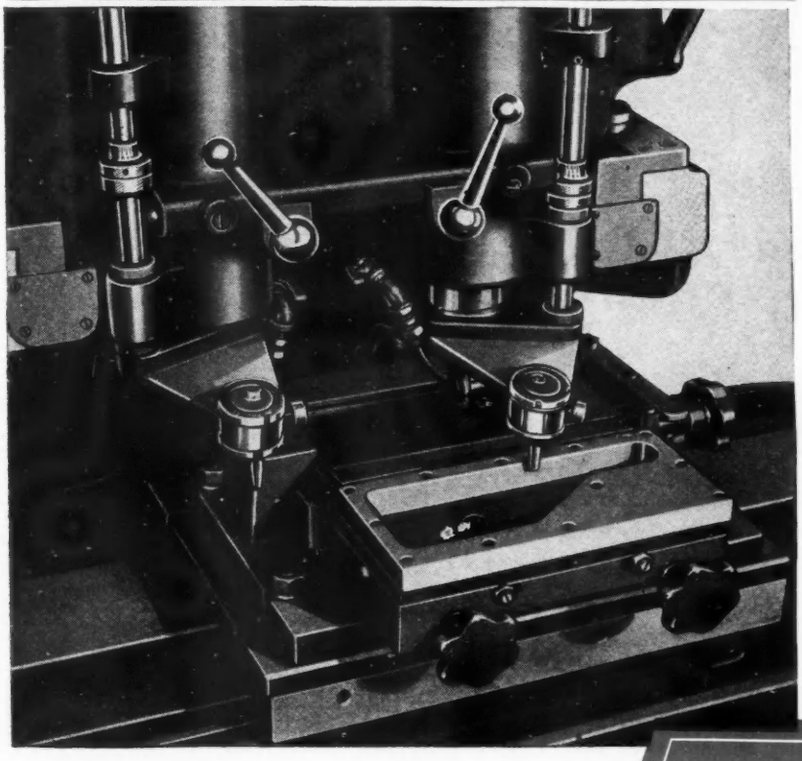
ELASTIC STOP NUT CORPORATION
2339 VAUXHALL ROAD • UNION, NEW JERSEY

Elastic Stop SELF-LOCKING NUTS

Faster Production of Complex Shapes

RED RING PROFILER





Many parts used in aircraft, breech mechanisms of small arms and machine guns, and in other products demanded by war, are of complex shape—difficult or impossible to produce by ordinary machining methods.

The Red Ring Profiler will produce many of them on a volume basis at low cost. The operating principle is that of accurately guiding the travel of an end mill to duplicate the profile of a master pattern.

Head and table are mounted on individual hardened and ground slides, each actuated by its own handwheel. Both elements are mounted on large diameter roller bearings. Weight is carefully distributed and balanced. Hence, both elements are instantly responsive to finger-tip pressure on their respective handwheels.

Manipulation of the handwheels keeps a former pin in contact with the master form, and guides the tool.

Write for detail on the Red Ring Profiler.

NATIONAL BROACH AND MACHINE CO.
RED RING PRODUCTS
5600 ST. JEAN · DETROIT, MICH.

SPECIALISTS ON SPUR AND HELICAL INVOLUTE GEAR PRACTICE

ORIGINATORS OF ROTARY SHAVING AND ELLIPTOID TOOTH FORMS

About Metal Cleaning and Chlorinated Solvents

In a news release dated March 2, 1942, the War Production Board requested fabricators of metal to investigate every possible metal cleaning method in anticipation of a possible shortage in chlorinated solvents. According to the Chemicals Branch of WPB, at least 30 per cent of cleaning operations can be accomplished by the use of cleaning materials such as mineral spirits, non-chlorinated-solvent water emulsions, and alkali-type materials.

An unofficial check-up of the situation by AUTOMOTIVE AND AVIATION INDUSTRIES intimates that at the present moment there appears to be an ample supply of chlorinated solvents now that the fabrication of many items intended for civilian use has been stopped. Consequently, the WPB warning may be interpreted as a means of preparing production men for any eventuality, not necessarily in the picture at this writing.

It is a well known fact that solvent degreasing equipment has been widely adopted through the industry and during the past year it has constituted an important part of the metal cleaning set-up in the new plants commissioned for the mass-production of the materials of war. There is little question that a more efficient, and more economical utilization of this equipment can go far to reduce the consumption of chlorinated solvents. We are assured that the technical services to this end is available to anyone who wishes to take advantage of it.

Anyone familiar with the problems of metal cleaning will appreciate that there is no universal cleaning material or a universal cleaning method. The type of metal to be cleaned as well as the nature of the process for which the metal surface is to be prepared, both have a profound influence upon the cleaning technique to be employed.

Under the circumstances, therefore, it will be in the interest of the war effort for production men to re-study their metal cleaning problems and to utilize the commercially available cleaning materials to their best advantage. If this is done without delay, it should relieve the chlorinated solvents situation, short of unexpected demands not now in the picture. It must be assumed that only a dire emergency will cause the available supply to be cut off when it is realized that plants now engaged in war production have large installations of vapor degreasing equipment which cannot be converted to the use of other types of cleaning materials.

We urge our readers to study the situation exhaustively and at once and to take advantage of the technical services of the specialists in this field.—J. G.

Edwards Buys Hill Diesel

Sale of the Hill Diesel Engine Co. to the Edwards Co., manufacturers of self-propelled railway passenger motor cars, has just been announced. The Edwards plant is in Sanford, N. C. Manufacturing activities of the Hill company are centered in Lansing, Mich. Ralph B. Rogers, president of the Edwards company, will head the new Hill management.

• • • *Unequalled* SURFACE SMOOTHNESS and SPHERICITY

The series of lapping operations performed as a matter of course in the Strom plant give Strom Steel Balls a degree of surface smoothness and sphericity that has always been unequalled in any other regular grade of ball. Only through such unique lapping practice can extreme precision be obtained.

Physical soundness, correct hardness, size accuracy, and sphericity are guaranteed unconditionally in all Strom Balls.

Other types of balls—*stainless steel, monel, brass* and *bronze* — are also available in all standard sizes. Write for catalog and prices.

Strom STEEL BALL CO.
1850 So. 54th Avenue, Cicero, Ill.
The largest independent and exclusive Metal Ball Manufacturer

CALENDAR

Conventions and Meetings

Amer. Society Mechanical Engineers, Spring Meeting, Houston, Texas, Mar. 23-25
American Society of Tool Engineers, St. Louis .....March 26-28
Natl. Petroleum Assoc., Cleveland, O., April 16-17
Midwest Power Conference, Chicago, April 9-10
American Foundrymen's Assoc. Annual Convention, Cleveland, O.....April 20-24
Chamber of Commerce of U. S., Annual Meeting, Washington, D. C..April 27-30
Assoc. of American Battery Manufactures Spring Meeting, Cincinnati, May 7 and 8
Society of Automotive Engineers, Semi-Annual Meeting, White Sulphur Springs, W. Va. .....May 31-June 5
Natl. Metal Congress & Exposition, Detroit .....Oct. 12-17

War Increases Use of Carbon Steel

Metallurgists Evolve Plans for Replacing Scarce Alloys; Ever-Present Scrap Shortage Still Slows Down Production

By W. C. Hirsch

Orders with high ratings absorb by far the greater part of the current output of steel mills, leaving very little for not quite so urgent requirements and less than that for needs that fall into the twilight zone between quasi-defense and essential civilian requirements.

More and more relief from this congestion is expected to come from a better understanding by consumers of alloy steels of the exigencies of the situation, which make substitution of plain carbon steels or in some exceptional cases of steels with a low alloy content imperative. The technical program to facilitate this switch, carefully worked out as it has been by SAE and American Iron & Steel Institute engineers and metallurgists, is being energetically promoted by leading steel companies, and before long should result in creating an orderly flow of orders with specifications that will pass muster by those whose chief concern is the conservation of strategically important materials for war uses in which they cannot be replaced. It is thought that, once this program functions properly, consumers will have reasonable assurance of delivery on time, and one of the toughest problems of the war-time steel set-up will have been solved. It's no easy job to convince a steel user, whose alloy formulas are the result of years of tests, that it is to his own interest as well as that of the country to forget all about the benefits of alloys for the duration of the war and, without further loss of time, to make the best of properly heat-treated carbon steels. But for the immediate benefit of those who must have these alloys to fill important defense material contracts, as well as to extend steel deliveries to others than those with highest priority ratings, steel producers have tackled this missionary task in earnest.

Intimation that more of the capacity of steel bar mills would be needed to fill shell steel requirements have blasted the hopes of many consumers with lower ratings that they would be able to obtain bar tonnages needed by them in the near future. Cold finishers had hoped to benefit from an allocation system that was scheduled to go into effect April 1, but which has now been indefinitely postponed. Detached cold-finishing mills have had considerable trouble of late in getting a sufficient quota of hot rolled bars to permit them to give satisfactory service to munitions makers.

Recent War Production Board notices to automobile manufacturers and body builders not to let any of their stock of sheets and strip steel get into the hands of others than those with the highest rating reflects the acute need for every ton of flat rolled steel in the defense program.

Shortage of scrap continues to be one of the negative factors in the situation. Ford Motor Company is getting only a fraction of its daily need of 1000 tons of outside scrap to keep its furnaces going. This necessitated one shutdown and may cause others, it is feared. The quality of the scrap being shipped to steel mills is the cause of much complaining, but scrap dealers explain that a good deal of light scrap, heretofore considered unusable, now finds its way to steel mills, where it is mixed with heavier material, thus helping to ease the tightness in the supply.

Metals Reserve Company, acting for the U. S. Government, will pay premiums for lead and zinc concentrates in the Joplin district on over-quota production.

ONLY LAPPING *As Strom Does It* CAN PRODUCE SUCH PRECISION

Strom Steel Balls possess a degree of surface smoothness and sphericity that has never been equalled in any other regular grade of ball. Such precision is exclusive with Strom because it can be attained only through a series of lapping operations such as are standard practice in the Strom plant.

Physical soundness, correct hardness, size accuracy and sphericity are guaranteed in all Strom Balls.

Other types of balls—*stainless steel, monel, brass* and *bronze*, are also available in all standard sizes. Write for complete details.

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The largest independent and exclusive Metal Ball Manufacturer

JUDGE A MANUFACTURER BY THE CUSTOMERS HE KEEPS

Why do so many famous builders of engines and engine-powered equipment select YOUNG heat transfer units? It's because YOUNG gives them dependable, well designed units manufactured with the same care and precision they insist on in their own product. What better recognition and recommendation can a manufacturer of cooling equipment enjoy than the trust and patronage of such customers as are listed below.

A CROSS SECTION OF BUYERS AND USERS OF YOUNG HEAT TRANSFER PRODUCTS

American Car & Foundry Company
American Locomotive Company
The Baldwin Locomotive Works
Boeing Aircraft Company
Brewster Aeronautical Corp.
The Buda Company
Edward G. Budd Manufacturing Co.
The Cooper-Bessemer Corporation
Cummins Engine Company
Douglas Aircraft Company, Inc.
Electro-Motive Corp.
Fairbanks, Morse & Company
Gardner-Denver Company
General Electric Company
General Motors Corporation
Le Roi Company
R. G. Le Tourneau, Inc.
Manitowoc Shipbuilding Corp.
Marmon-Herrington Company, Inc.
National Supply Company
Oliver Farm Equipment Company
Pullman-Standard Car Mfg. Company
Red Wing Motor Company
Standard Oil Company of New Jersey
Sterling Engine Company
Twin Coach Company
Waukesha Motor Company
Western-Austin Company
Westinghouse Electric & Mfg. Co.
Whitcomb Locomotive Company
White Motor Company
Worthington Pump & Machinery Corp.

YOUNG RADIATOR COMPANY
Dept. 212-C, Racine, Wis., U. S. A.

★ ★ ★ Young SERVICE ★ ★ ★

HEAT TRANSFER PRODUCTS

OIL COOLERS • GAS, GASOLINE, DIESEL ENGINE COOLING RADIATORS • INTERCOOLERS • HEAT EXCHANGERS • ENGINE JACKET WATER COOLERS • UNIT HEATERS • CONVECTORS • CONDENSORS • EVAPORATORS • AIR CONDITIONING UNITS • HEATING COILS • COOLING COILS

BOOKS . . . .

TRAINING OXY-ACETYLENE WELDING AND CUTTING OPERATORS—INSTRUCTORS OUTLINES, *published by the International Acetylene Assoc., 30 East 42nd Street, New York, N. Y. Paper-bound, $0.25; cloth-bound, $0.75.*

This new book prepared primarily to assist instructors in planning courses for the training of oxy-acetylene welding and cutting operators has just been published by the International Acetylene Association. It is divided into three chapters. The first outlines the essential information that should be presented in a course for the training of a general welding operator, an aircraft-welding operator, and a pipe-welding operator. The second chapter contains in outline form the material that is essential to the training of various types of cutting operators. The third chapter outlines the essential information that should be given in a course for inspectors and a specification of the primary requirements of students who take the inspector's course. Furthermore, these outlines furnish the basis for many other types of specialized courses, and suggestions for completing these are included in the book.

The material presented throughout the book has been divided into self-contained units, each of which includes the four essential parts of any particular lesson, namely, an outline for a classroom lecture, suggestions for study assignments, recommendations for the material that should be demonstrated and discussed, and a description of the practice exercises the student should do in the shop. Recommendations for qualitative testing of the work done are included throughout the book. An introduction describes in considerable detail the organization of the book and gives suggestions for its use.

A.S.T.M. STANDARDS ON RUBBER PRODUCTS, *prepared by the A.S.T.M. Committee D-11, and published by American Society for Testing Materials, 260 S. Broad St., Phila., Pa. $1.75.*

The new edition of this annual publication gives in the latest approved form the 39 specifications and methods of test. It includes several new standards first issued during 1941 and incorporates numerous revisions made in previously issued specifications.

Of the standards, 29 are general test methods covering chemical analysis, sample preparation, accelerated aging test, adhesion test, hardness, and others. Five standards pertain to rubber hose and belting and five cover rubber gloves, matting and tape. There are several specifications and tests for insulated wire and cable and standard requirements are given for latex, rubber cements, sponge and hard rubber products. The ten-page bibliography gives more important recent sources of information on mechanical testing of rubber.

Pontiac Collision Schools

Pontiac Motor Division has resumed the schools, inaugurated last year, for the training of service managers and body repairmen in improved methods or repairing damaged bodies; training in the accurate determination of costs is also included.

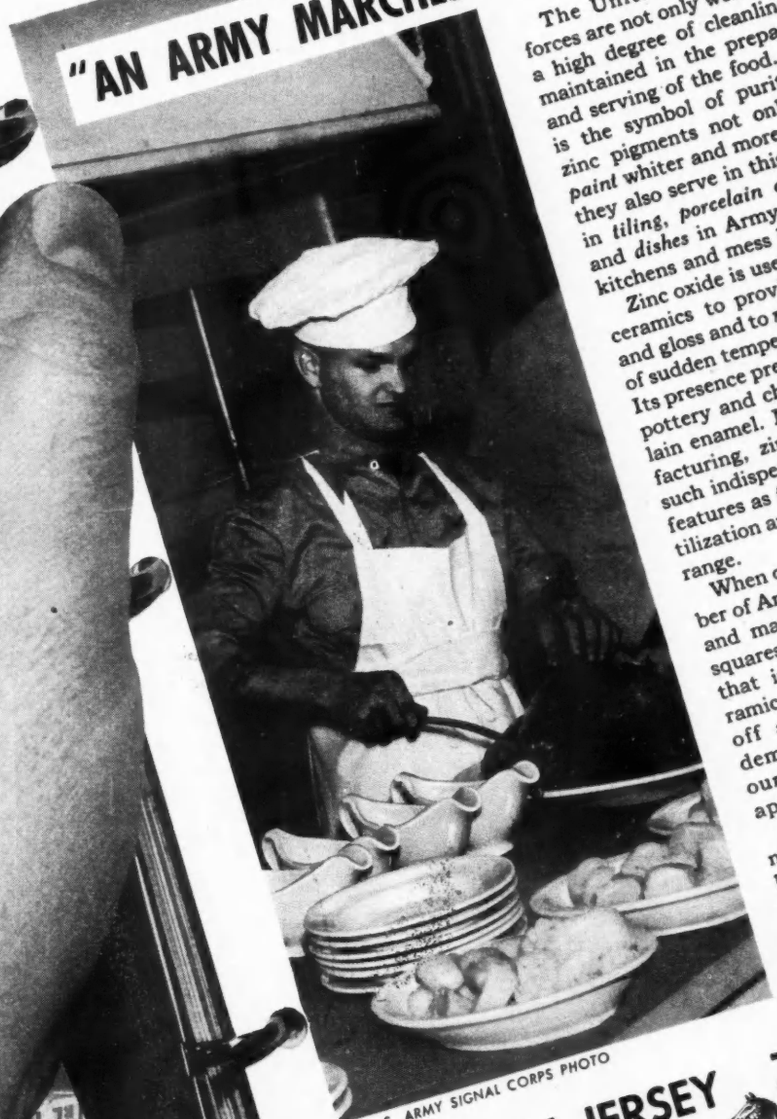
Eugene L. Bayliss

Eugene L. Bayliss, 62, former assistant production manager of the Harrison Radiator Corp., Lockport, N. Y., before its connection with General Motors Corp., died on February 19th.

ZINC IN WAR

5 CERAMICS

"AN ARMY MARCHES ON ITS STOMACH"



U. S. ARMY SIGNAL CORPS PHOTO

The United States armed forces are not only well fed, but a high degree of cleanliness is maintained in the preparation and serving of the food. White is the symbol of purity, and zinc pigments not only make *paint* whiter and more durable, they also serve in this capacity in *tiling*, *porcelain enamelware* and *dishes* in Army and Navy kitchens and mess halls.

Zinc oxide is used as a flux in ceramics to provide whiteness and gloss and to resist the shock of sudden temperature changes. Its presence prevents crazing of pottery and chipping of porcelain enamel. In ceramic manufacturing, zinc oxide provides such indispensable formulation features as fusibility, non-volatilization and wide temperature range.

When one considers the number of American soldiers, sailors and marines to be fed "three squares a day" — plus the fact that imports of European ceramic products have been cut off almost completely — the demands for zinc oxide by our ceramic industry can be appreciated.

This is just another one of the normal uses for zinc which has become greatly expanded by war needs — one more reason why civilian users may not be able to obtain all of the zinc they would like to use.

DIE CASTING

METAL SPRAYING

GALVANIZING

PHARMACEUTICALS

NICKEL SILVER

1 HULL PLATES

2 RUBBER

3 PAINT

4 BRASS

THE NEW JERSEY ZINC COMPANY

MANUFACTURERS OF THE FAMOUS HORSE HEAD ZINC PRODUCTS

New Jersey zinc

The Story of the Past Two Years

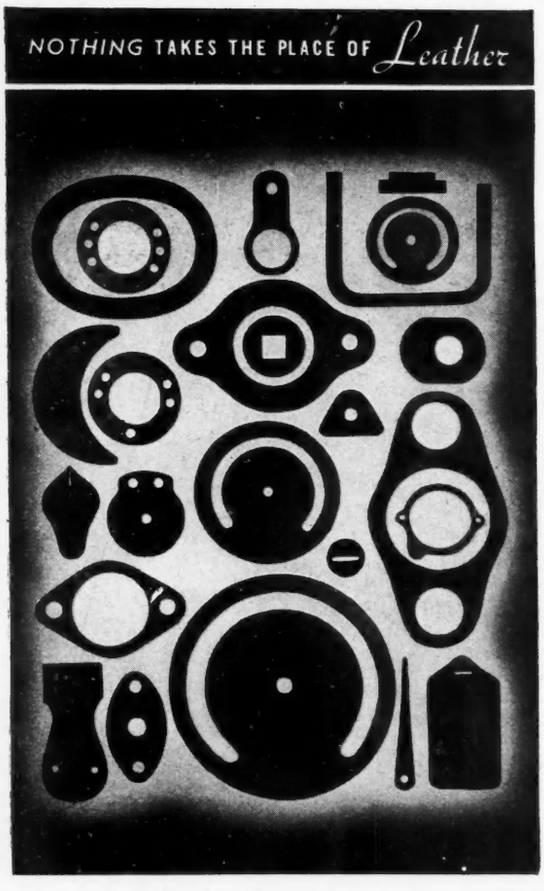
(*Continued from page* 120)

Board suggests best engineering minds suited to mediation jobs. . . . Retail automotive sales top '39 by 28 per cent, at $4,990,000,000. . . . **WPA reports industrial research spending over $150,000,000 annually.** . . . Casing shipments during 1939 total 56,975,044. . . . Crude rubber consumption in January 13.5 per cent over '39, at 54,978 long tons; reclaimed rubber consumption at 17,596 long tons. . . . **Weir predicts steel mill operating rate of 65 per cent to end of June as the industry waits revival of buying by automobile and parts manufacturers.** . . . Copper at 11½ cents causes tin prices to firm at 46 cents. . . . New pursuit plane, the Hawk 75 A-4 announced by Curtiss. . . . **Chrysler workers awarded $3,000,000 compensation by Michigan Unemployment Compensation Commission as strike benefit.** . . . WPA reports 1939 purchases of trucks and tractors at $3,562,000; rentals since July, '35, totaled $394,171,000. . . . Interdepartmental Screw Thread Commission to publish revised standards for threaded products. . . . Ford introduces a new 8-hp. model in England. . . . **FTC make public proposed trade practice rules for automotive industry on "Notice of hearing, and of opportunity to present views, suggestion or objections."** . . . Excise tax collections up 74 per cent in '39 to $51,063,588.59.

K-L BRAND LEATHER WASHERS

Hydraulic Packings and MECHANICAL LEATHERS

NOTHING TAKES THE PLACE OF *Leather*



Send Us Specifications or Samples for Prices!

EXCELSIOR LEATHER WASHER MFG. CO.
ROCKFORD, ILLINOIS

March 15, 1940

Production of cars and trucks in March expected to top record February total of 421,690 vehicles. . . . Ford gets decision in Colorado hearing in chain store tax case. . . . NADA takes dealer referendum on the Patman Bill. . . . **NLRB orders balloting in 59 GM plants to determine bargaining choice of workers.** . . . Britain favors high octane fuels for aircraft. . . . Russia's KIM auto plant reported producing 178 units daily. . . . GM announces separation allowances for salaried employees released for company reasons. . . . Bethlehem develops new air-hardening tool steel. . . . Casing shipments in January estimated at 4,276,512, a drop under December of 9.8 per cent. . . . **Employed ingot capacity at new low of 64.6 per cent, with alloy steel demand on upgrade.** . . . Barrel-type engine tested in light plane flight. . . . **Commerce Department reports speeding of aircraft industry in Australia.** . . . NEMA group changes name to Safety Equipment Manufacturers' Association. . . . Greece revises automobile imports quota of passenger cars to $54,000. . . . Labor Standards Act relaxes demand that manufacturers in interstate commerce maintain employment records in each state. . . . Commercial Credit reports operating income of $7,919,994 in '39. . . . Graham awarded RFC loan of $2,000,000 to provide working capital; company will let dealer establish final sale price in new merchandising plan. . . . **Germany's car exports reported at high level of 50,657 units in '39, with Sweden largest customer.** . . . Quote from lead article, "If the dealers of the automotive industry take the politician into partnership, even on a junior basis, the evolution must be that the politician, slowly but surely, will take the part of a senior and controlling partner."

April 1, 1940

Production of cars and trucks, according to early estimates, will reach 450,000 units, approximating January production of 449,314 units. . . . **From 1934 through 1939, light 'plane production in U. S. rose from 100 to 3500 annual output.** . . . NADA through its counsel, Donald R. Richberg, voices opposition to FTC trade rules at March 20 hearing. . . . **Employed ingot capacity of steel mills falls to 62.4 per cent as month ends.** Many mills building reserve stocks of semi-finished materials against improvements in demand. . . . **Fabricated copper and brass demand drops as Allies ease purchases. . . . Magnesium production to be doubled by Dow.** . . . Packard gets Navy order for $2,000,000 worth 1200-hp. marine engines. . . . Rim inspections up 28 per

(*Turn to page* 162, *please*)

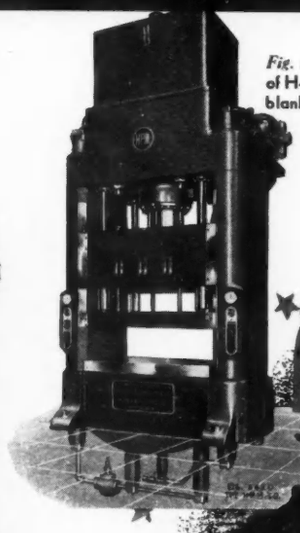


Fig. 5420—A complete range of sizes of H-P-M FASTRAVERSE presses with blankholder or die cushion for deep drawing sheet metal.

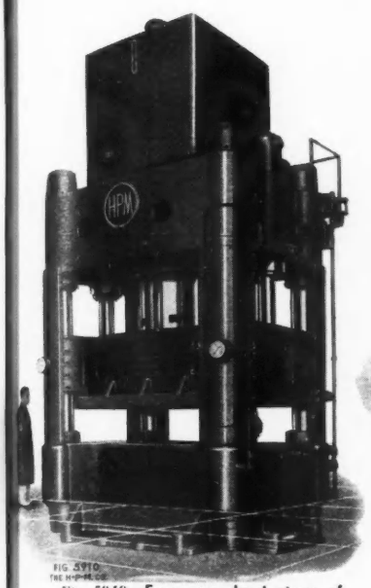


Fig. 5910—Four standard sizes of H-P-M presses for the cutting and forming of metal aircraft parts by the rubber pad process.

H-P-M
HYDRAULIC PRESSES
The standard for defense production

For today's all out defense production, industry has found by experience H-P-M press performance to be outstanding for continuous low cost operation. Powered by H-P-M built Hydro-Power radial pumps and controlled by the exclusive H-P-M Closed Circuit system of operation, H-P-M Presses reflect the ultimate in modern self-contained automatic hydraulic press equipment. Look to H-P-M for "stepped up" defense production.

THE HYDRAULIC PRESS MANUFACTURING COMPANY
Mount Gilead, Ohio, U. S. A.

District Sales Offices: New York, Syracuse, Detroit and Chicago
Representatives in Principal Cities

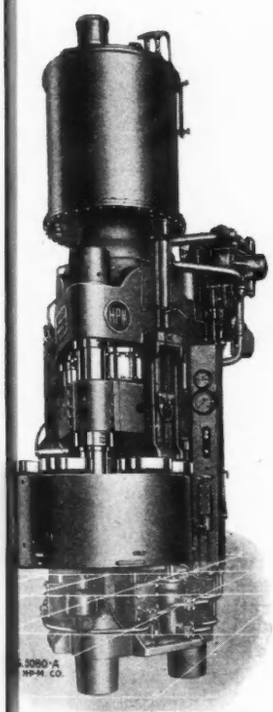


Fig. 5080-A—Cartridge case heading and indenting presses for case sizes–37mm. to 6"–47 cal. inclusive.

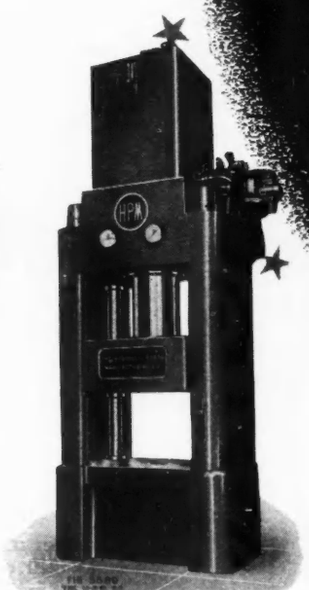


Fig. 5580—H-P-M presses for nosing high explosive shells, 75 mm. to 155 mm. Similar presses used for billet breaking.

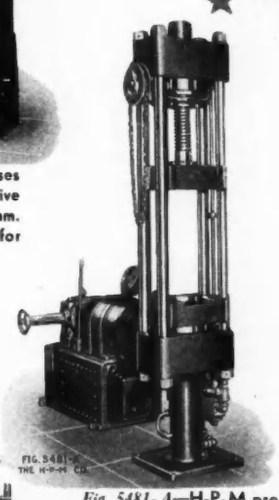


Fig. 5481-A—H-P-M projectile loading press.

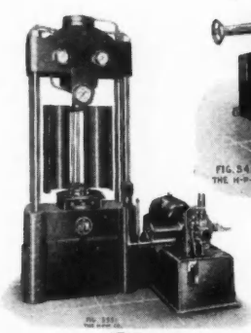


Fig. 5551—H-P-M shell testing presses for hydrostatic testing of explosive shells.

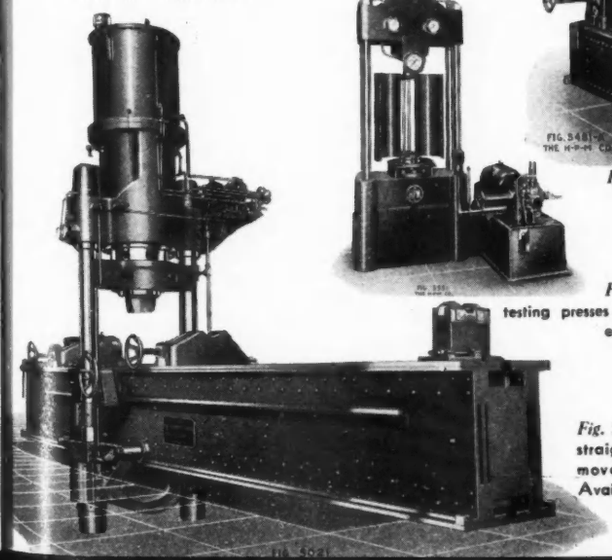


Fig. 5021—H-P-M gun straightening press with movable pressure unit. Available in capacities from 100 to 750 tons.

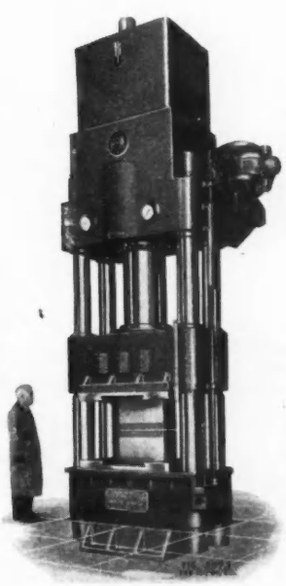


Fig. 5973—A standard line of H-P-M forging presses for all "hot" forging and trimming applications.

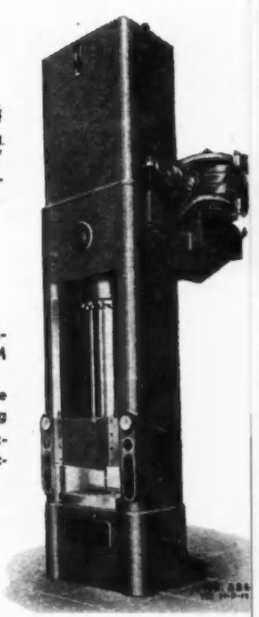


Fig. 5361—A complete line of H-P-M presses for:—
1. Cartridge Case Drawing & Tapering
2. Forging high explosive shells (Piercing and Drawing).

(*Continued from page* 160)

cent in February to 1,850,383. . . . **Lapsing of trade treaty Jan. 26 with Japan hampers that country's expansion program.** . . . Ruling on compensation for Chrysler workers due April 1; benefits growing out of 55-day strike last fall still unpaid. . . . **GM plants balloting set for April 17.** . . . According to Commerce Department report, January financing 35.3 per cent over '39 mark, at $110,576,769. . . . **Crude rubber consumption down 9.4 per cent in February to 49,832 long tons. Gross imports down 40.6 per cent to 43,088 long tons.** . . . NEMA reports January index up to 178. . . . Quote from lead article, "State lines have become points in space to railroads, airlines and water commerce. . . . But to the motor carrier, a state line generally spells trouble, red tape, taxes and delay."

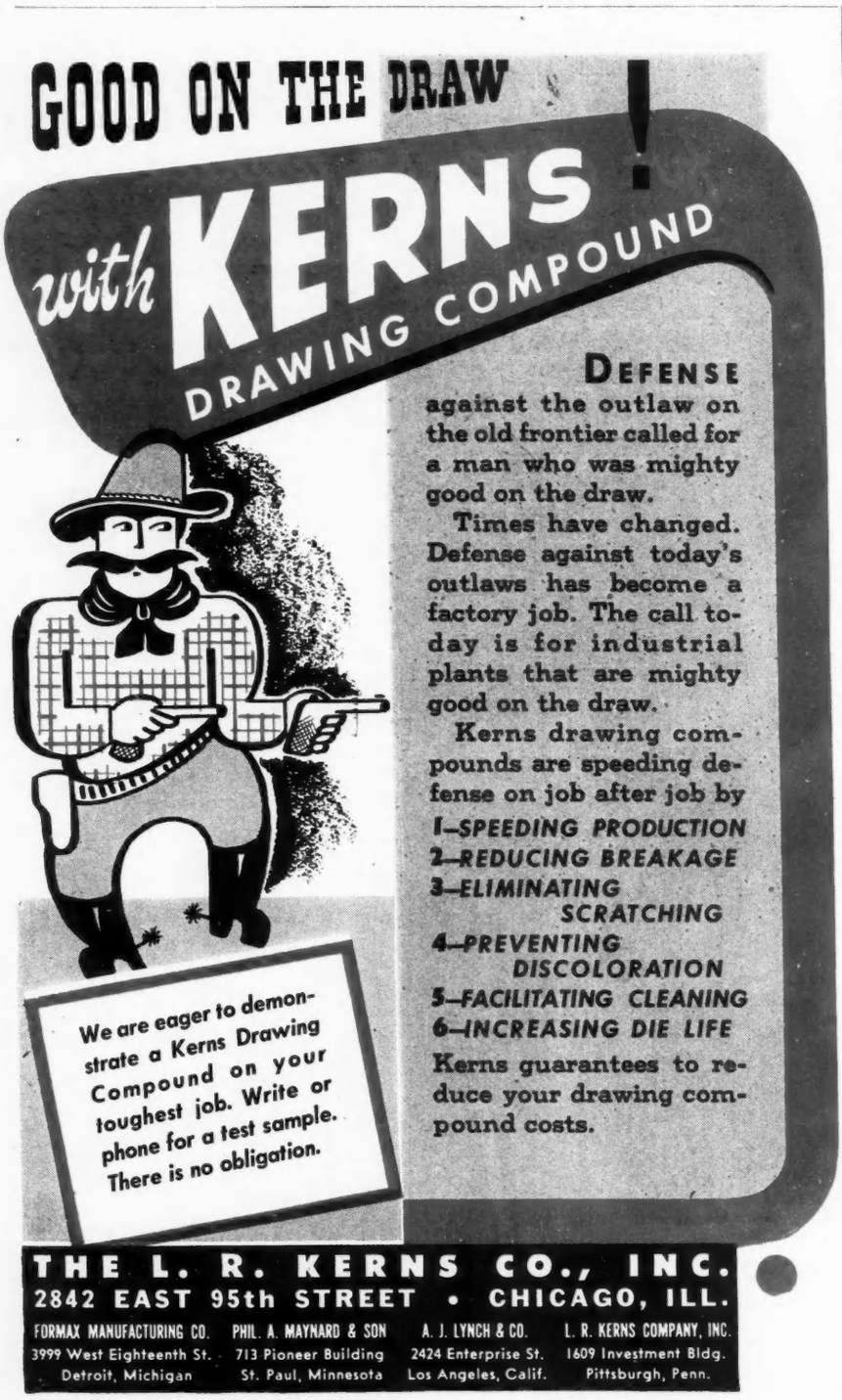
April 15, 1940

Production of cars and trucks may pass March production of 439,100 vehicles as spring buying gets under way. . . . February tire shipments of 4,118,030 units reveal upward trend. Shipment of casings for original equipment estimated at 1,974,273 units. . . . **NADA referendum on Patman bill, 975 for, 8125 against. Proposes broader plan of dealer-manufacturer relations without benefit of Government regulation.** . . . Chrysler allowed 10 additional days to file briefs in UAW-CIO and UAW-AFL claims for jobless benefits covering 55-day strike, before Michigan Unemployment Compensation Board. . . . **February output in Canada up 30 per cent.** . . . NSPA index shows continued advance to 161. . . . AFL approves while CIO and industry oppose Norton Bill in House hearing. . . . **Election year and war depress long-range planning in steel industry, bookings in some mills equalling only 40 per cent of capacity.** . . . Russia prepares for production of KIM-10, new light car. . . . Drawings in May for 41st annual National Automobile Show. . . . Reo adds a Diesel line. . . . **"Necessity is again calling for inventors . . ." Kettering tells Temporary National Economic Committee.** . . . Reo reorganization fees reduced by Court order. . . . **Canadian financing of new and used cars up 43 per cent in February.** . . . SEC reports increase of $62,000,000 in assets of 19 aircraft manufacturers. . . . Quotation from lead article, **"Mr. Patman finds himself in the position of the earlier Frankenstein, who no doubt found that the monster of his creation was 'misunderstood' by those it threatened to destroy."**

May 1, 1940

Production of cars and trucks in April estimated at 450,000 vehicles, almost 100,000 ahead of April, '39. . . . Pennsylvania Act forbidding transport of cars on truck-trailer convoy racks over the cabs of trucks upheld by Supreme Court. . . . NADA begins 7th-annual survey of dealers' earnings, costs and other factors. . . . **CIO's UAW president, Thomas, tells TNEC he "is not interested in hindering technological improvements; only in obtaining greater share of benefits to labor.** . . . Crude rubber consumption up 1 per cent in March, to 50,192 long tons. Gross imports, according to Commerce Department figures, up 37.5 per cent to 59,258 tons. . . . French automotive engineers contemplate peace problems at war's end. . . . **Steel mill operations during last April week dip to 60 per cent of ingot capacity.** . . . In surprise announcement leading steel producer boosts prices, which in effect abrogates earlier $4 reduction. . . . **Payment of Chrysler 55-day strike benefits enjoined in Michigan court for review.** . . . Rim inspections up 11 per cent in March to 1,918,041. . . . **UAW-CIO wins exclusive bargaining rights in 48 GM plants. Company and union to begin negotiations on formal certification.** . . . February automobile financing off 0.2 per cent to $110,371,421 in Commerce report. . . . National Automobile Salesmen's Ass'n formed in Detroit. . . . Machine tool industry's activity in March stood at 93.4 per cent of capacity. . . . Quotation from lead article, **"This Eastman Report ought to furnish ample proof of the unequal and wholly uncalled-for taxation presently imposed upon us who own or use motor vehicles."**

(*Turn to page* 166, *please*)


GOOD ON THE DRAW
with KERNS !
DRAWING COMPOUND
DEFENSE against the outlaw on the old frontier called for a man who was mighty good on the draw.
Times have changed. Defense against today's outlaws has become a factory job. The call today is for industrial plants that are mighty good on the draw.
Kerns drawing compounds are speeding defense on job after job by
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2—REDUCING BREAKAGE
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4—PREVENTING DISCOLORATION
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Kerns guarantees to reduce your drawing compound costs.
We are eager to demonstrate a Kerns Drawing Compound on your toughest job. Write or phone for a test sample. There is no obligation.
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TESTS ON TEMPERATURE DISTRIBUTION— NO LOAD CONDITIONS

Oven controller set at 500 degrees F. Furnace controller set at 580 degrees F. Interior exploration with thermocouples through nine different openings showed no significant difference in temperatures in any of these nine positions!

TESTS UNDER FULL LOAD CONDITIONS—

Seven tests were run in which two thermocouples were inserted in drilled holes in the bases of 105 mm. cases and placed in various positions in the loads.

CONDITIONS OF TEST

Load: Four trucks weighing approximately ..... 800 lbs.
110 cases (105 mm.) on each truck at 6 lbs. each. Total weight cases ..... 2640 lbs.

Oven Controller set for 500 degrees F. 3440 lbs.
Heater Controller set for 580 degrees F.
All bare wire thermocouples used.
Oven up to temperature for varying lengths of time before loading.

RESULTS

These loads of 3440 lbs. come up to 500 degrees F. in 40 minutes. The control couple and the check couple come up to temperature in about the same time — plus or minus three minutes, about the limit of reading the times off the charts.

Check couples in the center of a loaded rack come up in 40 minutes and there is no significant difference in the temperature in any part of the load, in any part of the oven. A temperature difference of 5 degrees usually existed between the two check couples. This difference was not consistent for any location, like front or back, top or bottoms.

The temperature of 525 degrees F. was reached about 15 minutes after the work reached 500 degrees F. and remained constant at 525 degrees F. for about 45 minutes of a one-hour stress relief.

The variation throughout a loaded oven is less than the specified 10 degrees.

THIS is typical of results you can expect from Maehler Heat Treating Ovens for any job! Write for NEW BULLETIN and details on ovens for your job today.

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Recirculating Airheat Ovens
for Tempering, Bluing, Aging, Annealing, Drawing, Stress Relieving, Normalizing, Japanning, Enamel Baking, Core Baking and other industrial purposes.

(*Continued from page* 162)

May 15, 1940

Production of cars and trucks in May estimated at point above May, '39, level of 313,214 units. Total for first four months at 1,758,445. . . . Problems of machine tool electrification discussed at East Pittsburgh forum. . . . **Ford, breaking precedent, will display at National Automobile Show.** . . . Importer to pay 1 per cent additional duties on diesels and parts, based on invoice cost, less 10 per cent and 2½ per cent, as dutiable value, in Customs Court decision. . . . Many American trucks now in French army service. . . . MEMA index reveals continued advance, in all branches except accessories, to 164. . . . GM domestic sales mark 34 per cent increase for first quarter to $67,028,461. . . . **Crude rubber consumption in U. S. during 1939 totaled 592,000 long tons, an all-time record. Thikol and Buna synthetic rubber estimated at 1700 long tons.** . . . Future automobiles to have double present power, travel twice as far on gallon of gas is prediction of director Boyd of GM fuel laboratories. . . . **NLRB orders Ford to bargain with UAW-CIO, declaring company hostile to labor.** . . . March casings shipments fall below March, '39, level to 4,351,657 units. . . . GM opens negotiations with UAW-CIO over general wage increases, paid vacations, improved seniority plan, shop steward system and joint adjustment on disputed production standards. . . . **Steel mills up output to 65.9 per cent, week of May 11, due to automobile manufacturers orders.** . . . Minimum steel wage of 45 cents in South to 62½ cents in East become effective May 24 as result of Supreme Court decision. . . . Quotation from lead article, "It is not enough to build an efficient automobile . . . the route (highways) is as important to the vehicle as thread is to a needle."

June 1, 1940

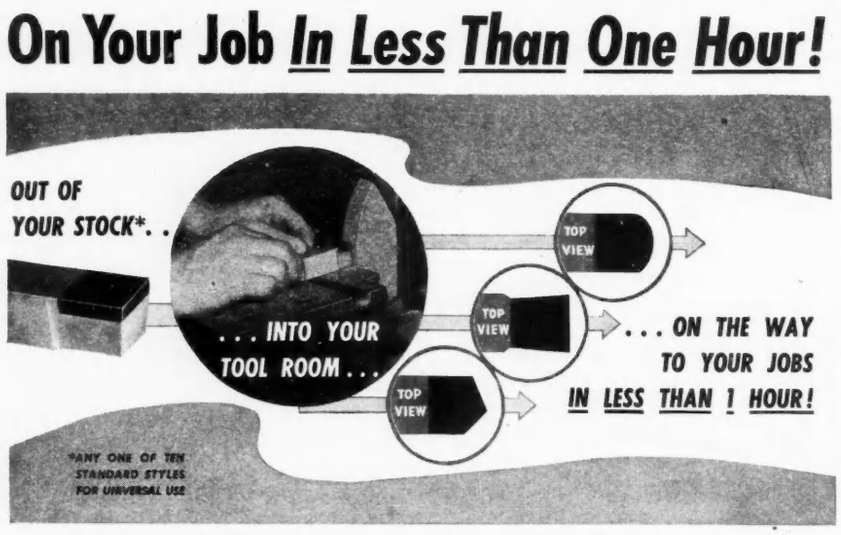
Seasonal decline slows production of cars and trucks, but expectancy is that final May figures will exceed 410,000 units. . . . Sales for first five months, with May estimated, set at 2,174,000 vehicles. . . . **Speakers at 24th annual meeting of National Industrial Conference Board, May 22, stress free enterprise as key to strong defense.** . . . Private motor trucks in interstate commerce go under ICC jurisdiction Aug. 1, under May 8 Commission ruling. . . . NSPA reports automotive index up 5 per cent in April. . . . Rim inspections gain 35 per cent over a year ago, to April total of 1,822,686. . . . Britain new car registrations 20 per cent of pre-war figure. . . . NADA cautions FTC that approval of Fair Trade rules might hamper efforts to iron out differences of opinion. . . . **Steel industry takes measures to step up raw steel output as President's preparedness program and European war developments gain attention.** . . . Crude rubber consumption up 11 per cent over '39 to 50,103 long tons. Commerce department reports gross imports for month, of 70,699 tons. . . . Ford 1939 profits $16,402,746. . . . **GM enters airplane propeller business.** . . . Chrysler suit to halt outlay of $1,892,000 benefits may challenge constitutionality of Michigan unemployment act. . . . March financing of automobile sales 30 per cent over February, to $143,482,765. . . . **April operating rate of machine tool industry 93.4 per cent of capacity.**

June 15, 1940

Production of cars and trucks in May estimated at 404,700 units, continuing at a high rate through first two June weeks. . . . **William S. Knudsen leaves GM presidency to head President Roosevelt's National Defense Advisory Commission.** . . . Automotive leaders active as defense plan crystallizes. . . . Federal mediators enter GM-CIO negotiations after union rejects new contract. . . . Ingot operations at 84.6 per cent capacity on expected early commitments of automotive industry buying. . . . **Italy in war, leaves Japan only buyer in U. S. of volume scrap.** . . . Standardized steel types needed to speed aircraft production. Number of special steels to be reduced by Defense Commission. . . . **First synthetic tire of American materials announced by Goodrich.** . . . Production and Machine Tool Show, in Cleveland, June 25-29. . . . **Thurman W. Arnold**

(*Turn to page* 168, *please*)

How To Get "Special" Carboloy Tools On Your Job *In Less Than One Hour!*


OUT OF YOUR STOCK*. .
. . . INTO YOUR TOOL ROOM . . .
TOP VIEW
TOP VIEW
TOP VIEW
. . . ON THE WAY TO YOUR JOBS IN LESS THAN 1 HOUR!
*ANY ONE OF TEN STANDARD STYLES FOR UNIVERSAL USE

Busy production executives who want to establish a way to get specially shaped carbide tools on machining jobs *FAST*, can save time and money and get immediate results by following this simple, practical plan:

1. Have your tool designers select Carboloy Standard Tool styles suitable for quick adaptation to your special shapes.
2. Establish, in your tool crib, a nominal stock of the standards your designers select.
3. Grind these standards to special shapes *as required.*

This standardization plan is being followed today by many leading producers of tanks, engines, shell, guns, small arms and other war materials. It permits maximum tool economy, eliminates delivery delays and provides a way to get special tools on the job *FAST!*

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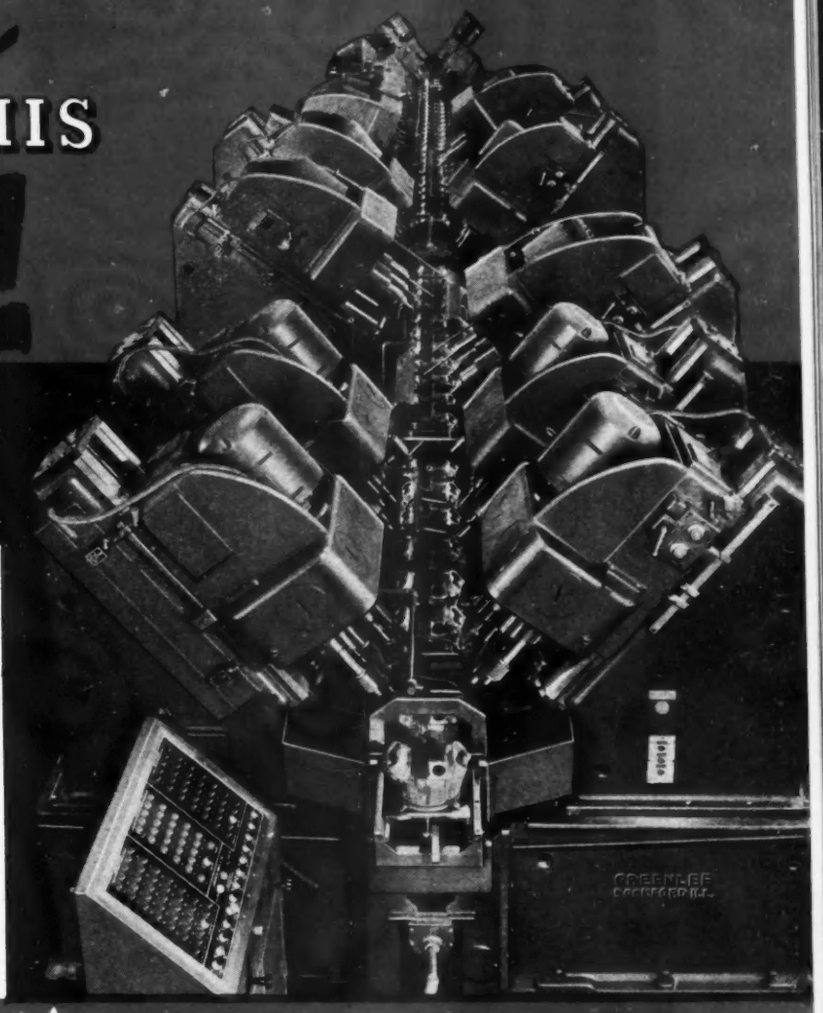
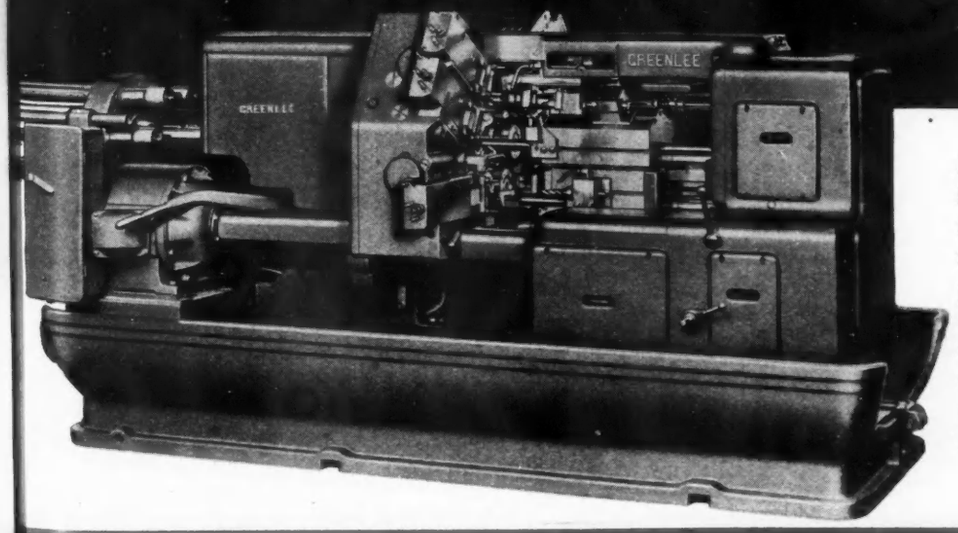
HERE'S THE KIND OF HELP *Greenlee* IS GIVING IN THIS WAR!



SPECIAL MACHINES THAT TURN OUT ONE AIRPLANE CYLINDER HEAD EVERY 45 SECONDS

Here is one of three Greenlee Multiple-Station, Straight-Line Automatic Transfer Machines installed in the new Wright Areonautical Corporation plant at Cincinnati for drilling, reaming, counterboring, countersinking, spotfacing, and tapping the aluminum cylinder heads for the Wright 14-Cylinder Cyclone Engine. The machine shown here is 73 feet long, is comprised of 11 way-type machines, and has 56 stations. This group of Greenlee Machines in the Wright Plant, the first to successfully apply mass production methods in aircraft engine production, turns out one completed head every 45 seconds. Years of experience in building special machinery for the automotive industry have gone into these machines and Greenlee Bros. & Co. is proud of the tremendous part that this equipment has in the building of the planes we need so badly today.



AUTOMATIC SCREW MACHINES THAT ARE DAILY SAVING VITAL SECONDS

In the big job facing us today — the task of arming America as fast as possible — Greenlee Automatic Screw Machines are proving invaluable in the production of the shells, aircraft parts, gun parts, munitions, and many other defense parts so essential to this nation's safety. The speed of setting up and changing over, and the speed and ease of operation of Greenlee Automatics are daily saving valuable production minutes in hundreds of plants throughout the country.

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Greenlee BROS. & CO.

ROCKFORD ILLINOIS U.S.A.

AUTOMATIC SCREW MACHINES • SPECIAL MACHINERY

(*Continued from page* 166)

modifies policy respecting defense industries which may have to transgress anti-trust laws; suggests he will seek court consent decrees as they pertain to national emergencies, upon government certification of necessity. . . . Quote from lead article, "The Society (SAE) is already equipped with active working committees under standardization and research and as special groups, which naturally fit into the new National Defense committee structure."

July 1, 1940

Production of cars and trucks in June was estimated at 324,235 units; the final figure for May, 412,492, and for the first six months, over 2,500,000. . . . "**. . . Emergency service to external defense . . . domestic defense of national prosperity, a challenge to private management," said Alvan Macauley, at AMA Detroit meeting.** . . . Washington tells Wright Aeronautical Corp. Paterson plant addition must be repeated immediately. . . . Vacation pay allowance and an impartial umpire on grievances features of new GM-CIO-UAW contract. . . . May tire shipments top April by 14.2 per cent, to 5,720,249. . . . Certification of one AFL and one CIO election, and opening of ballots in two GM units marks NLRB orders. . . . **Used cars scarce in Japan although exports increase.** . . . NSPA sales off 1 point, exports 8 per cent under April. . . . 18,000 attend Tool Show in Cleveland. . . . MEWA at Chicago meeting retains merger committee to work for merger with NSPA. . . . **Consumption of crude rubber up 3 per cent in May, to 51,619 long tons.** . . . Glenn L. Martin sets up new training school for engineering instruction with full pay. . . . Charles F. Kettering discounts quick ability to produce 1000 planes a day. . . . **Automobile makers place blanket orders to avoid delays arising from armament demands for steel; ingot operations at 86.5 per cent for final June week.** . . . Ford production of Rolls Royce engines called off because of company's refusal to produce for foreign countries. . . . Membership of ASTE in ASA announced. . . . Quotation from lead article, "**. . . the country is far from unified on the question of how far and how fast we shall proceed in getting ready for a national emergency of a military character.**"

NEARLY every Bendix Drive spends its whole life undergoing a merciless "breakdown test." Consider:

It is totally ignored for months and years, receiving virtually no maintenance or servicing attention . . . and rarely demanding any. The owner takes Bendix Drive reliability for granted—and there've been mighty few disappointments over the years, among the more than fifty million users.

We believe, from our naturally quite attentive observation of this gigantic army of users, that Bendix Drive helps deliver Better Starting because it's *Better to Start With.*

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ELMIRA, NEW YORK

BENDIX DRIVE

July 15, 1940

Production of cars and trucks in July may not exceed 1939 production of 218,478, showing seasonal trend and holiday cuts. . . . **Donald M. Nelson named Purchasing Coordinator under National Defense Advisory Commission to centralize defense purchasing.** . . . UAW-CIO has gained to ballot rights in 58 GM plants. . . . **Lieut. Col. Russell L. Maxwell named Administrator of Export Control, making export of tools and strategic metals subject to military supervision.** . . . Holiday week depresses steel ingot production to 74.2 per cent of capacity, from preceding week of 86.5 per cent. . . . **Metal Reserve Company under RFC to buy 75,000 pounds of tin. . . . FTC reported drafting final trade practice rules for automobile industry.** . . . Trailer makers organize Truck Trailer Manufacturers Association at Chicago meeting. . . . Inventories of automobiles and equipment show May decline to index 98.2, from 108.5 in April. . . . **Packard president Gilman says large Rolls Royce airplane engine contract will not affect new passenger car output. . . . Ford of Canada begins $700,000 expansion program for military production.** . . . GM denies FTC allegations that GM dealers must sell GM parts exclusively. . . . **U. S. Rubber develops new airplane armor plate of rubber and steel.** . . . Automobiles in Canada to bear heavy wartime tax. . . . MEMA index of 162 for May reveals 29 point increase. . . . Henry Ford receives the James Watt International Medal, highest mechanical engineer award. . . . Quote from lead article, "**Industry is facing pretty squarely the problems of adapting the machinery and management of production to the requirements of national defense.**"

August 1, 1940

Production of cars and trucks in July estimated at 220,000 units. Total for first six months, 2,446,458. . . . **Briggs**

(*Turn to page* 170, *please*)

Gets around where larger trucks can't operate

Light—for wood floors and light elevators. Compact — gets into tight places. Low—enters freight trucks. Long reach — stacks its load clear to the ceiling. Three capacities—1,000, 1,500 and 2,000 lbs. Two tiering ranges—60 in. and 108 in. Powered by 4-cylinder Continental "Red Seal" engine.

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—a NEW 2,000-lb. fork truck that will put "snap" into your production!

Capable of 24-hr. operation, 7 days a week!

A New Tool for Your Re-tooling Program

Industry's ability to produce in astronomical figures has been challenged. To step up the tempo, materials, parts and finished product must be moved faster, piled higher.

Clark "Clipper" — active as a cricket — can help you speed your production schedules. It has versatility, stamina and power!

The low price will please you.
Ask for descriptive folder.

CLARK TRUCTRACTOR

Div. of Clark Equipment Co.

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(*Continued from page* 168)

and the Murray Corp. form aircraft divisions to manufacture metal wing assemblies for U. S. Navy monoplanes. . . . NMTBA and National Defense Advisory Commission believe continued cooperation may avoid priority hardships. . . . **Steel ingot output attains 1940 high at 88.2 per cent for week ending July 27.** . . . Court affirmation of $1,500,000 unemployment compensation to 23,000 Chrysler workers appealed by company and UAW-CIO. . . . **Britain exports 30,000 automobiles during seven months of war.** . . . Crude rubber consumption decreased 9.9 per cent in June to 46,506 long tons: Reclaimed rubber consumption at 15,844 long tons. . . . Commissioner of Internal Revenue with Army and War secretaries issue rules for certifying cost of equipment and facilities on defense contracts. . . . **National Defense Advisory Commission announce synthetic rubber processes beyond experimental stage.** . . . U. S. rearmament and Italy war entry squeeze Japan's machine tool imports. . . . **Orders for military planes held up by request pending adoption of plan permitting writing off new facilities in five years, against profits.** . . . June tire shipments heaviest since 1932, at 10,064,915: Production at 5,127,384 units. . . . Warner Aircraft gets order for 250 Super-Scarab 165 hp. engines for Australian training planes. . . . Quote from lead article, **"Mass or quantity production is not a process that can be started at will."**—A. P. Sloan, Jr.

The use of "Asco" Diamond Cutting Tools for fine turning, boring, tapping and finishing operations, produces a mirror-like surface, that, in most cases, eliminates need for subsequent grinding, polishing and lapping. This saving of an entire operation is a vital consideration in meeting the rush demands of War production.

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August 15, 1940

Production of cars and trucks in July totaled 237,300 units. Sales show sharp increases in defense production areas. Some models in 1941 production. . . . **AMA to study problems connected with loading and transporting of finished cars.** . . . Australian car building stymied by war. . . . **Export restrictions on machine tools relaxed on items in adequate supply above defense needs.** . . . Civil Aeronautics Authority reports landing fields and seaplane bases on increase. . . . **Goodrich and Phillips Petroleum form Hydrocarbon Chemical & Rubber Co. to manufacture synthetic rubber.** . . . President's Jan. 31 aviation gasoline embargo stirs Japanese ire. Gas for ground vehicles not affected. . . . Federal Loan Administrator Jones earmarks $8,000,000 for Packard for facilities in Rolls Royce aircraft engine manufacture. . . . **Kettering named head of National Inventors Council to encourage civilian invention.** . . . RFC approves $92,000,000 loan to Wright Aeronautical to finance new engine plant. . . . **Steel mills operating rate rises to 90.5 per cent ingot capacity for week ending August 10; no price concessions to car makers anticipated.** . . . **Thomas announces Ford and Aviation industry goals of UAW-CIO in 1941.** . . . Quote from lead article, "Younger muscles combined with older brains can solve this problem of defense productivity."—Geo. T. Trundle, Jr.

September 1, 1940

Production in August of 1941 model cars and trucks estimated at 105,000 units with acceleration of manufacturing schedules. . . . **Chrysler to build army 28-ton tanks under $53,500,000 contract; production in year.** . . . RFC forms Defense Plant Corp. and Defense Supplies Corp. to aid in defense construction and defense output. . . . **Steel mills booking fourth-quarter automobile business.** . . . Some steel mills decline quoting prices binding prices for first 1941 quarter. . . . **Magnesium and tin prices lower; zice up.** . . . Circuit Court affirms FTC 6 per cent ruling on deferred payments. . . . United Aircraft expansion to cost $15,000,000. Pratt & Whitney increase manufacturing space. . . . July rim inspections over 1939 mark by 21 per cent to 825,089. . . . Ford reported ready to wind up affairs in Japan. . . . **Walter P. Chrysler dies at 65.** . . . Goodyear to manufacture its synthetic rubber on several tons per day schedule. . . . Faddis-Hill Bill authorizing the President to requisition machine tools and strategic materials gets House approval. . . . RFC awards $34,000,000 to Curtiss-Wright for plane plants. . . . Bankable contracts offered in plan of National Defense Advisory Commission to expedite contracts. . . . Critical and essen-

(*Turn to page* 172, *please*)

EFFICIENT SEALING

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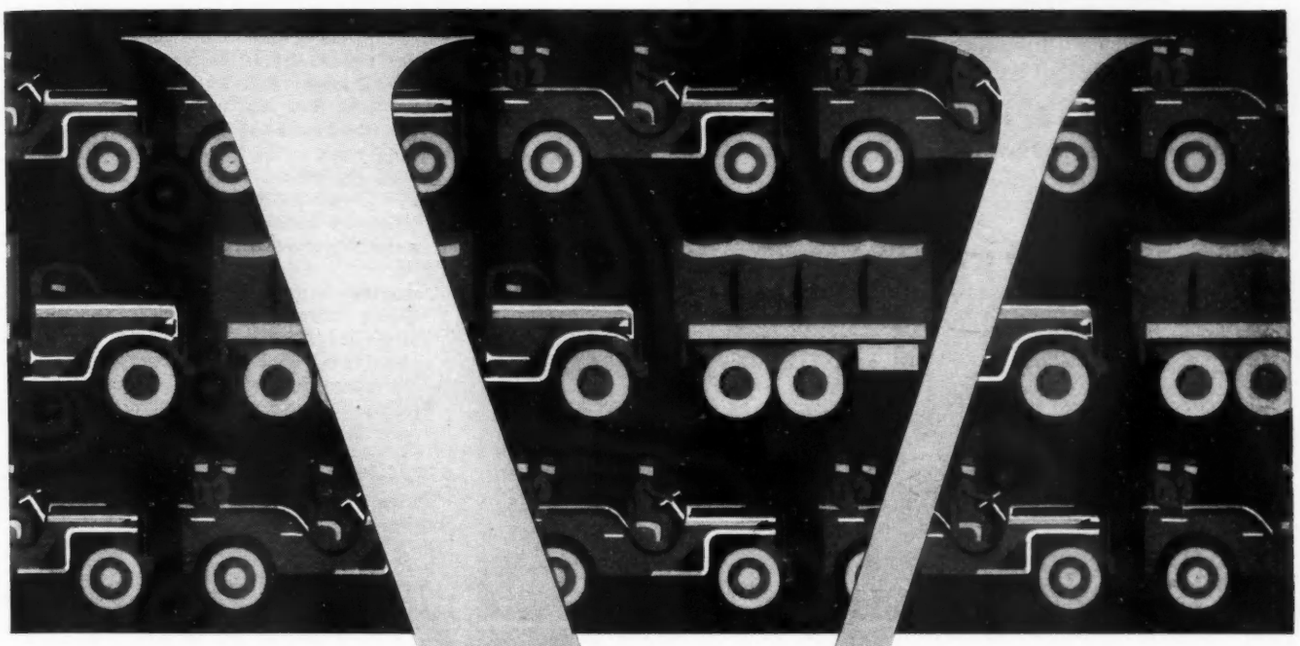

We need both men and machines to win this war.

But machines are never better than their bearings.

Replacing a bearing failure requires precious time and materials.

Now it becomes a national duty to protect bearings adequately.

Against grit and moisture from the outside.

Against loss of lubricant from within.

This is done most effectively by "Perfect" Oil Seals.

In addition, these seals facilitate mechanical assembly.

They can be quickly and easily replaced.

They are small, self-contained and inexpensive.

Ask Chicago Rawhide engineers for their advice. They are your allies in the fight to "keep 'em rolling."

Widely used on aircraft, machine tools and vehicles of all kinds

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62 Years Manufacturing Quality Mechanical Leather Goods Exclusively
And Now Sirvene Synthetic Products

(*Continued from page* 170)

tial materials now being purchased by the War Department's Quartermaster Corps on f.o.b. mill and "split bidding" basis. . . . MEMA reports decline in shipments in all branches in June. . . . ASA announces completion of an American standard for twist drills. . . . Quote from lead article, "While we contribute what is needed to equip our defense establishment, we can do most to maintain the strength of this country by keeping up our normal business."

September 15, 1940

Production of cars and trucks in September expected to exceed 192,600 units. . . . **Knudsen asks Senate Finance Committee to strike from excess profits tax bill provision giving Government a voice in post-war disposition of defense plants.** . . . Aero chamber urges a date earlier than July 10, 1940, for beginning of amortization. . . . MEMA index down to 121 per cent in July. . . . W. S. Knudsen relinquishes all connections with GM. . . . Three-Phase Labor Supply plan providing estimates of potential demand, and factory and school instruction as factors, now in operation. . . . NADA speaker at Washington conference warns that price scare advertising causes price spiralling. . . . **UAW-CIO fights dismissal of 20 Ford workers, charging Wagner Act violation.** . . . War Department establishes seven new Quartermaster motor supply depots to expedite army distribution of motor transport parts. . . . New $1,000,000 Lincoln-Zephyr plant completed at Detroit. . . . Cornell offers scholarships to apprentices in industry to train promising young engineers. . . . **Production of toluene from petroleum can be made in volume in short time, announces E. R. Stettinius, Jr., of Defense Commission.** . . . Rubber imports average $151,000,000 over five-year period. Consumption in July increased 1.1 per cent to 47,001 long tons. . . . **Planes and parts orders recently placed total $307,778,737.** . . . . . **Demands for various types of steel quickens under impetus of defense orders: Ingot rate at 82.5 per cent capacity.** . . . Canada orders $2,500,000 in marine engines from Packard. . . . Quote from lead article, "Virtually all large industrial organizations now have some form of training program. Present shortage of skilled labor due to failure of educational system to keep pace with machine age, union labor's restrictive attitude toward use of apprentices and slowing down of industrial training programs through depression years."

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DURO Saws AND Grinders
Correctness of design, correctness of materials and manufacture greatly increase the efficiency and scope of Duro Band Saws. Their durability eliminates production failures. Their ease of operation both mechanical and manual add materially to their output. You can depend upon Duro Band Saws for high efficiency. Their value is paramount. Their cost is most modest.
DURO FOR DURABILITY
DURO HEAVY DUTY HAND GRINDERS
Here's the grinder for all industry. It's the modern tool for speed-up cutting of metal, wood, plastic, etc. It will save much time for you in routing—cutting—grinding—sanding—polishing—of intricate and delicate operations. Running on sealed ball bearings at 24,000 R.P.M., produces the finest results. Its sturdy construction assures long trouble-free operation. Its streamline design facilitates easy handling. Get yours today for increased production.
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October 1, 1940

Production of cars and trucks in September estimated up 40 per cent over September, 1939, at 275,000 vehicles. . . . Polk reports 210,000 new passenger cars and 47,500 new trucks registered in July. . . . Industrial plants get FBI confidential manual on sabotage preventive measures. . . . **Ground broken Sept. 10 for $20,000,000 Chrysler tank arsenal. . . . Ford breaks ground Sept. 17 for $4,000,000 aircraft engine plant.** . . . Aircraft, engine and accessory designs being "frozen" to get speed into production. . . . Defense orders reported in this issue placed in Detroit area total $129,892,000. . . . **War Department sends speed-up letters to manufacturers working on $1,250,000,000 aircraft program.** . . . Federal requisitioning of private plants for defense work ordered by President. . . . Motorcycle production up 19.4 per cent in '39, at $43,052,278. . . . Packard orders for British and U. S. aircraft engines may reach $350,000,000; company reports work under way in $57,000,000 building and tooling program for new aircraft engine plant. . . . **Steel rate touches 950,000 tons weekly; million ton level soon may be reached.** . . . Wright Aeronautical to build nation's first magnesium foundry for castings manufacture. . . . Quote from lead article, "We decided to superimpose the defense load on the regular business load of the country in order to first take up the slack, and then adjust it if necessary."—William S. Knudsen.

October 15, 1940

Production of cars and trucks in October expected to go over 469,000. . . . Production during the 1940 model year

is estimated at 4,285,000. . . . **A new cotton tire cord with a claimed 300 per cent longer flexing life announced by National Cotton Council.** . . . Machine tool operating rate at 93.3 per cent in August. . . . **Continental opens idle plant to build tank engines; Government to finance $8,000,000 retooling costs.** . . . 1939 trailer output at $253,951,435. . . . **Goodrich president says 18 months required to engineer, construct and begin operations for synthetic rubber plant.** . . . Strikes at GM Diesel and Willys plants end. . . . **UAW-CIO drive to organize Ford will "proceed in orderly manner," Widman says.** . . . Justice Department seeks to divorce GM and GMAC. . . . **Survey shows 74,600 skilled workers on unemployment registers seeking jobs.** . . . Caterpillar develops two new Diesel marine engines. . . . Current defense orders to the automotive industry reported in this issue total $63,975,397. . . . **Steel mills reflect faster tempo of production in automobile plants. Ingot output for week of Oct. 12 at 94.2 per cent.** . . . **Industry expects early decision on plans for Government-financed tin smelter with 35,000-ton goal.** . . . Henderson hints Federal price control over copper, lead, zince may be necessary. . . . North American Aviation gets $37,770,981 for aircraft. . . . Labor Department rules employees in training classes not considered entitled to compensation for training periods. . . . **August crude rubber consumption up 7.4 per cent to 50,477 long tons.** . . . Casing shipments down in August to 4,173,508. . . . Japanese seeking car market in Spain. . . . Quote from lead article, "The new automobile show . . . it will show the toil and thinking which precede the apparent ease and faciity of the mass production processes."

November 1, 1940

Production of cars and trucks in October reached a three-year peak with an estimated output over 500,000 units. . . . **Automotive industry leaders convene Oct. 25 in Detroit to discuss plan to produce $500,000,000 in planes and bombers in 18 months.** . . . Ford and Packard aircraft engine plants, Chrysler tank arsenal and Continental Motors will require 40,000 workers. . . . **UAW-CIO votes $300,000 assessment for campaign fund, uses 75 organizers in drive to organize Ford workers.** . . . U. S. and Britain to confer on aircraft standardization. . . . Output of automotive electric equipment shows $28,000,000 decline in '39. . . . **Aircraft industry ordered by War Department on 24-hour day basis wherever possible.** . . . Nine months' rim inspections up 19 per cent to 14,021,592. . . . **Tire and tube manufacture in U. S. reveals an increase of $19,000,000 over '37, to $497,636,438, while production of reclaimed rubber dropped over $1,000,000.** . . . Financing of retail automobile sales off 0.5 per cent in July, to $166,034,312. . . . Knudsen reveals $8,000,000,000 in defense orders already placed; $4,000,000,000 more by end of November. . . . U. S. motor vehicle taxes (cars and motorcycles) $1,912,223 in September. . . . Boeing plants again to be doubled in size, to 74 acres. . . . **Japan produces two new cars for export drive.** . . . FTC reports '39 production in nine U. S. aircraft plants totals $255,004,218. . . . About 350 industrial firms exhibit at 22nd Annual National Metal Exposition, Oct. 21-25 at Cleveland. . . . **Plastics output up 20.5 per cent in '39 over '37 to $63,054,576.** . . . With prices stationary and market stable auto makers go on "as needed" basis. Ingot capacity during week of Oct. 26 at 94.9 per cent. . . . Ford announces new 4-cylinder engine in 1941 truck line.

November 15, 1940

Production of cars and trucks in November estimated to top 450,000 vehicles. . . . Final figures for October reveal output of 519,700 units. . . International Nickel survey shows increased use of high strength, low alloy, heat-treated steels for aircraft parts. . . . **Estimate shows 4.2 per cent gain in vehicle registration for 1940, surpassing '39 by 1,300,000, at 31,559,723.** . . . UAW-CIO demands for new contract include provision for draftees, vacation bonus, union shop, wage adjustments and change in seniority clauses. . . . NADA now affiliated with American

GOING OUT TO DO A JOB
DURO Drill PRESSES
Duro Drill Presses, both slow and high speed, embody features and quality construction that enables them to deliver an almost unbelievable volume of production. Practical design—careful machining—correct balancing, precise grinding, proper 4 ball bearing spindle support, contribute to ⅝" drilling capacity in steel, with smooth and vibrationless operation.
Their superior design, rigid construction, careful assembly, stiff inspection, heavy castings, balanced parts, result in doggedly persistent economical service and long life. Duro Drill Presses are not expensive.
DURO FOR DURABILITY
DURO METAL PRODUCTS CO.
DEPT. AI-15
2649 N. KILDARE AVE., CHICAGO, ILL.

Retail Federation. . . . Air Associates to build $200,000 plant at the Los Angeles Municipal Airport. . . . Under new defense law plants adding "necessary facilities," after June 10 may amortize cost over five-year period. . . . **Automotive representatives of 70 plants study aircraft plans, parts and blueprints at headquarters Automotive Committee for Air Defense in Detroit.** . . . Recent defense orders to automotive firms total $145,014,009. . . . Guiberson Diesel engine receives orders for $3,888,705 for U. S. tanks. . . . **Car makers maintain steady steel buying. Ingot capacity at 96 per cent week ending Nov. 9.** . . . Aluminum down 1 cent to 17 cents a pound. Copper at 12 cents. Tin market easy at 51 cents. . . . Ex-Cell-O launches $3,000,000 aircraft expansion program. . . . Census shows piston rings lead in replacement sales. Total 1939 sale, 170,674,395 units. . . . **Standards Bureau devises new test for stainless steel with aim of increased use in aircraft production.** . . . Casing shipments up 8.1 per cent in September to 4,511,664 units. . . . New $500,000 plant proposed for Houde, for auto, tank and plane precision parts. . . . Graham-Paige suspends automobile production; retooling section of Dearborn plant to manufacture naval and military engine and ordnance parts. . . . Chrysler leases 600,000 feet of Graham plant for defense production. . . . Another section leased to Tucker Aircraft for bomber gun turret production. . . . Parts and accessories sales up 29.9 per cent in '39 to $563,770,843. . . . Quote from lead article, **"Millions of dollars were lost to manufacturers during the last war period because they failed to define 'minor changes' in their contracts."**

December 1, 1940

Production of an estimated 485,000 cars and trucks set a new high record for November. . . . **In four months Allison Division of GM steps up production more than 600 per cent.** . . . High court to decide if Government can maintain triple damage suit against 17 tire makers alleged to have conspired in price fixing. . . . **Goodyear's President Bloor sees no need for tire priorities with industry operating at 75 per cent.** . . . Safety signal group agree to standards for safety-lighting equipment as gazetted by Bureau of Standards. . . . **CIO petitions U. S. to withhold defense orders from Ford.** . . . Packard, Ford training mechanics and machinists for Navy. . . . Federal Works Administrator before AMA Washington meeting, claims need of 2900 miles of access roads as part of national defense highway program. . . . **Thomas authorizes Vultee Aircraft strike after dispute over basic wage scale.** . . . National Defense Advisory Commission in expanding sub-contracting technique seeks localities where idle plants and men are available for parts manufacture or assembly. . . . **With pressure on American interests increasing, Ford will wind up interests in Japan.** . . . Census of manufacturers show wholesale price of autos up $37 while value added by manufacture is down 16.3 per cent. . . . **U. S. used 50,206 tons of rubber in September.** . . . Kelsey-Hayes buys 100 acres to erect machine gun plant. . . . Goodyear receives $1,324,000 order for Navy blimps. Other recent defense orders to automotive and aircraft industries reported in this issue reach $364,050,167.

December 15, 1940

Production of cars and trucks in November reached a grand total of 514,500, topping all early estimates. . . . **Ford receives order to manufacture 1500 "pygmy" trucks for Army; American Bantam will build another 1500 of these combat cars.** . . . Timken launches $3,000,000 expansion program to meet defense requirements. . . . Automotive Committee for Air Defense files articles of incorporation. . . . President Jouett of Aero chamber reports industry has spent $83,366,580 for plant expansion; have let contract for $232,188,472 additional. . . . Goodyear synthetic rubber plant awaits only installation of equipment. . . . **Speakers at NAM Congress stress national defense.** . . . MEMA October index shows sharp upturn to 190. . . . Passenger car trailer production in '39 drops 35 per cent to 16,052 units. . . .

(*Turn to page* 176, *please*)

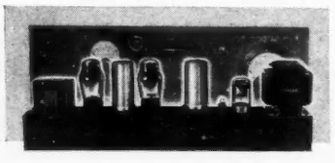
With EACH Profilometer
200 SURFACES MEASURED PER HOUR
. . 24 Hours A Day!

Illustrated are Profilometers in use in an automotive plant where production figures such as these have been established.

While Profilometers are extremely sensitive instruments . . . providing the most accurate measurements of the finest surface finishes . . . they are also built for hard, and, when necessary, constant production use. They have proved invaluable for three-shift inspection of many precision parts. In many other instances, they are in regular use next to the machines on which the finishes are being produced . . . where surfaces can be checked as the work progresses . . . where the part can be completed with the knowledge that it meets all surface roughness requirements.

If surface finish is important in your operations, Profilometers can help to speed your production and cut rejection of parts to a minimum. They are entirely practical, flexible in their application, and simple to use. Full information will be mailed you immediately upon request.

PROFILOMETERS CAN NOW BE AC OPERATED



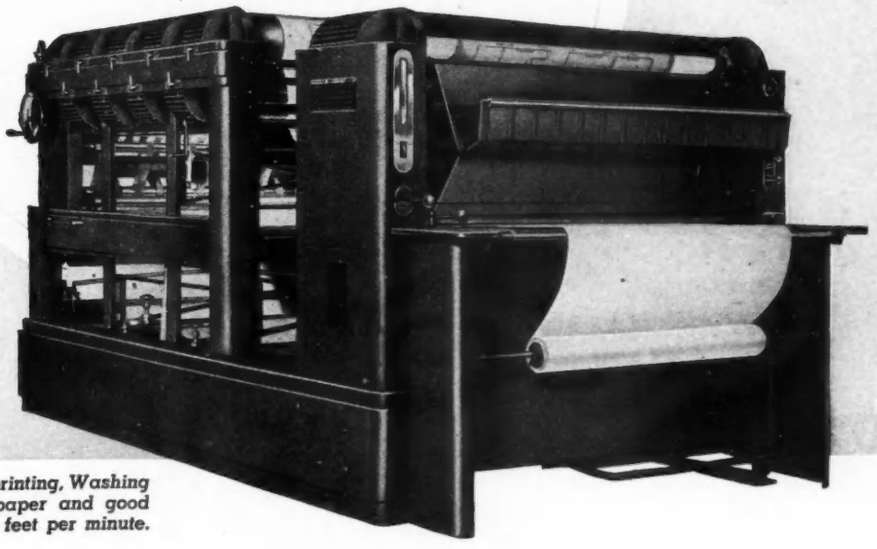
Until recently Profilometers have been supplied only as self-contained instruments, complete with batteries, to permit full portability. Now, with the increasing need for their uninterrupted use, provisions have been made to convert them for constant operation on AC lines. The power pack shown at the left makes it possible for a Profilometer to be used on 115 volt 50-60 cycle power lines. It is available at only a slight extra cost.

The PROFILOMETER
PHYSICISTS RESEARCH COMPANY
343 SOUTH MAIN ST. • ANN ARBOR, MICH.

TIME...

The most valuable thing in your plant...

Save it with BLUEPRINTS *at 30 feet per minute*



Pease Model "22" Continuous Blueprinting, Washing and Drying Machine using fast paper and good tracings produces Blueprints at 30 feet per minute.

War taxes men and machines to capacity to provide our armed forces and our allies with the supplies they need for victory . . . Time is all-important —it must be used wisely and well.

Pease Continuous Blueprinting Machines meet every challenge . . . operate faster, more economically . . . require less attention . . . deliver a greater volume of Blueprints.

. . . and too, time is saved in the drafting room for clear, contrasty Blueprints can be made from pencil drawings without inking in.

These Advanced Features Simplify Production

★ Sliding "Vacuum-like" Contact smooths out tracings.
★ Three Speed Lamp Control operated at 10, 15 or 20 amperes.
★ Actinic "No-Break" Arc Lamps give unusual uniformity of light.
★ Horizontal Water Wash free from tension—prevents wrinkles.
★ Quick Change Chemical Applicator System for Blueprints or Negative prints.
★ Eight-inch Drying Drums heated by gas or electricity.

THE C. F. PEASE COMPANY

2635 WEST IRVING PARK ROAD • CHICAGO, ILLINOIS

Blueprinting Machines A TYPE AND SIZE FOR EVERY REQUIREMENT INCLUDING DIRECT PROCESS PRINTING

(*Continued from page* 174)

Over 10,000 Michigan workers in eight to 10-week classes prepared for defense jobs within past three months; mid-1941 goal set at 25,000. . . . SAE annual meeting set for Detroit, Jan. 6-10. . . . **Largest independent steel producer tells Defense Commission he will expand annual ingot capacity by 8 per cent, or 850,000 tons.** . . . Three new models of heavy-duty natural gas engines announced by Caterpillar. . . . DuPont makes another large addition to Deepwater, N. J., neoprene plant. . . . Quote from lead article, **"Developing the farming out process (in defense program) aids democracy: It's a democratic way—a new phase of democracy in defense work."**

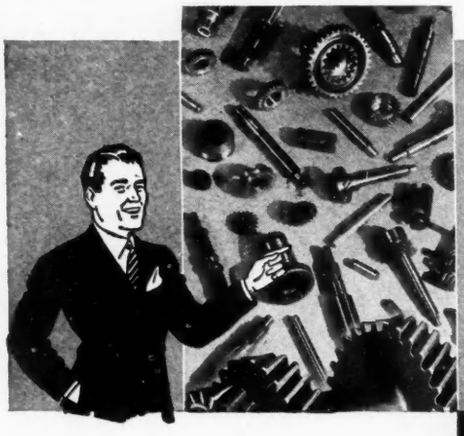
January 1, 1941

December production of an estimated 510,000 cars and trucks bring 1940 production to 4,690,000 units, according to estimate based on Commerce Department figures. . . . **Machine tool makers suggest to Director Knudsen that a program giving the "what, where and why" for machines required would stimulate even greater cooperation.** . . . War Department moves to break machine tool bottlenecks by issuing "letters of intent" authorizing plant expansions. . . . **National Industrial Advertisers' Assn. report shows 20 per cent of U. S. plant capacity unused; overhead twice as much as selling cost.** . . . Automotive Committee outlines procedure for plants with facilities for air defense manufacture of parts. . . . New car registrations for November listed at 300,000. . . . Automotive retail sales at $5,544,435,000 in '39—up 31 per cent over '35 sales. . . . GM defense orders for Allison liquid-cooled engines from U. S. and Britain total $496,000,000. . . . **U. S. Navy announces new $12,000,000 ordnance plant for Hudson.** . . . Defense orders placed with other GM units total $258,021,497. . . . Connecticut cooperates with Pratt & Whitney in job-training program. . . . Fruehauf has started production on trailers for War Department. . . . **Four companies, under contract agreement with UAW-CIO paid auto workers $3,733,000 vacation allowances in December.** . . . FTC reports raw materials cost of automobile manufacture represents 53.5 per cent of sales and production; wages and salaries, 17.6 per cent. . . . Steel market remains virtually unchanged. Users of high grade carbon and alloy steels to benefit from 50 per cent increase in electric furnace capacity due this year. . . . **Aluminum Industries enlarging plant facilities for defense orders.** . . . Construction on Ford airplane engine plant proceeding on 24-hour basis. . . . Navy's small boat program and defense work of boat builders to be reflected in Motor Boat Show, New York, Jan. 10-18. . . . Quote from lead article, **"Engineers working on passenger cars, buses, automotive railroad equipment and other earthbound vehicles will find new leaves for their notebooks in the aircraft-engine (SAE) sessions."**

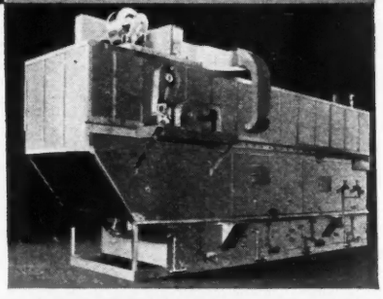
January 15, 1941

Production of cars and trucks in January estimated to reach 450,000 units. . . . **Army and Navy speakers tell SAE delegates 250,000 vehicles only small part of defense requirements; quality needs stressed.** . . . Buick and Studebaker prepare for aircraft engine production; Buick gets $24,313,150 from U. S. for plant; Studebaker, $36,799,300. . . . **Ford, GM and Chrysler to be made responsible for production of fuselage parts and sub-assemblies in big bomber program.** . . . **Ford to produce parts for Consolidated B-24 Bomber; and fill defense orders for Pratt & Whitney, 18-cyl. radial engines; General Motors will be responsible for the B-25, two-engined bomber; Chrysler, the B-26.** . . . Goodyear to receive $13,899,541 contract for powder bagging plant; Nash, a $3,000,000 order for Army trailers. . . . More than 1000 men enroll in tuition-free engineering defense training course at Illinois Tech. . . . **Steel production at 97.2 per cent sets new record; 1,500,000 net tons in week of Jan. 11.** . . . Ford appeals reinstatement decision; Walkout at Briggs; New UAW-CIO contracts with Packard and Budd. . . . **NMTBA in Jan. 6 Washington meeting with Knudsen outline 4-point**

(*Turn to page* 178, *please*)



Efficient Cleaning Of ALL Metal Parts

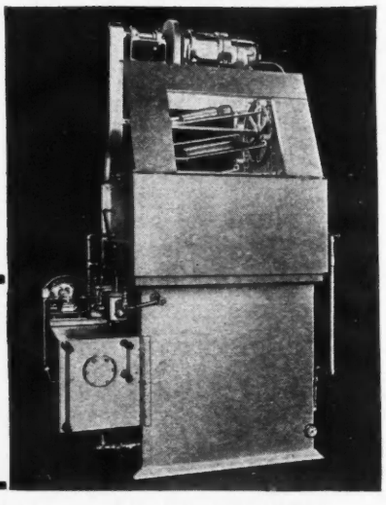


DETREX Degreasers and Washers are engineered to meet specific metal cleaning requirements. Equipment is designed to handle parts of every size and description.

For example, if the cleaning is to be done between production operations, prior to plating or in preparation for inspection, the machines are built to be efficient units of the departments in which they are used.

If your production—like that of hundreds of other plants—is turning rapidly to the manufacture of armament parts, you are undoubtedly faced with many new metal cleaning problems. The answer to them can always be found in the use of Detrex products—Degreasers using stabilized safety solvents Perm-A-Clor and Triad . . . Detrex machines for Alkali, Spirits and Emulsion Cleaning . . . and Triad alkali compounds, strippers and emulsion cleaners.

Write for literature or free engineering consultation.



● Above: Detrex processing machine incorporating alkali wash, chromic acid dip, hot water rinse and overhead drying oven.

● Right: Special design spray type Detrex Degreaser — for the production cleaning of shells.

SOLVENT DEGREASING and ALKALI CLEANING

DETROIT REX PRODUCTS COMPANY

13001 HILLVIEW AVENUE • DETROIT, MICHIGAN

Branch Offices In Principal Cities of U. S. A. — In Canada: Canadian Hanson & Van Winkle Co., Ltd., Toronto, Ontario

MOTHER NECESSITY'S *Child!*

BORN of the necessity to defend America have come new ideas and new methods in the design and manufacture of piston rings.

Today, with new requirements to meet and new problems to solve, Sealed Power is exploring every possible improvement in design, materials, and methods. Advancements thus achieved are reflected in rings now being produced—for automobiles, for airplanes, for Diesels, and for marine and stationary engines.

For thirty years Sealed Power engineers have led in original piston ring research, design, and manufacture. The ability and the experience of these engineers are at your service.

BUY DEFENSE BONDS

SEALED POWER CORPORATION

Muskegon, Michigan • Windsor, Ontario

(*Continued from page* 176)

plan to raise machine tool production to $650,000,000 in '41. . . . New standard for gage blanks effective Jan. 1, 1942. . . . MEMA sales above '39 level at 183 per cent of January '25 base. . . . AMA considers proposal to call off the National Automobile Show. . . . Quote from lead article, "Refinements made by the enemy (planes) must be matched or improved upon to survive."

February 1, 1941

Production of cars and trucks in January estimated at 505,000 units. . . . Problem of suitable correction formula for brakepowers of Diesel engines gets SAE consideration. . . . **Michigan Labor Mediation Board invokes 30-day strike notice to prevent wildcat strikes in interest of defense work.** . . . Strike at Eaton plant averted. . . . **Biggers, Knudsen, Stettinius, Harriman, Johnson, Batt in new OPM lineup; plan to distribute contracts widely.** . . . GM, Graham, Packard, Willys get Government loans aggregating $96,218,280. . . . **New York Automobile Show definitely off.** . . . Bantam to receive loans of $1,435,000. . . . Army orders 10,419 more Dodge trucks. . . . Buick selects site near Chicago for new $31,000,000 factory built to produce P & W 14-cyl. engines. . . . Three large steel companies to use Jones & Laughlin Bessemer method. . . . New York, Chicago and Detroit dealers consider local shows. . . . Wright Aero plane engine production greatly increased. . . . Knudsen announces machine tool problems will be "over the hill" by May. . . . **Automotive demand sets steel market pace; Jan. 25 marks new production peak in ingot capacity at 99.1 per cent.** . . . NAM makes nation-wide industrial plant census for defense mobilization. . . . **Layoff of union committee precipitates Chevrolet strike.** . . . Quote from lead article, "arbitrarily curtailing motor car output would reduce employment in some industries not vital to national defense."

Governors and Defense
Important in time of peace . . . playing a vital role in protection of truck equipment from premature wear and promoting every phase of operating and maintenance economy . . . governors become increasingly valuable in time of war . . . a necessity, in fact . . . for operators must secure more mileage from each vehicle, each tire, each engine, each gallon of gas, each quart of oil.
Governors assume a new responsibility . . . preventing waste of materials needed by our forces in the field. It's the duty of every truck operator to make what he has last longer . . . and our duty to provide the best means for accomplishing this end.
That Hoof Governors meet every requirement is attested in the roster of the thousands who insist on this quality product.
GOVERNOR
SAVE GAS 13.5%
SAVE OIL 26%
SAVE TIRES 22.6%
SAVE BRAKES 29.2%
SAVE ENGINE REPAIRS 32%
SAVE ACCIDENTS 37%
SAVE INSURANCE 16%
Average savings of 200 operators . . . USING GOVERNORS
HOOF PRODUCTS COMPANY . . . Chicago, Ill.
HOOF GOVERNORS

February 15, 1941

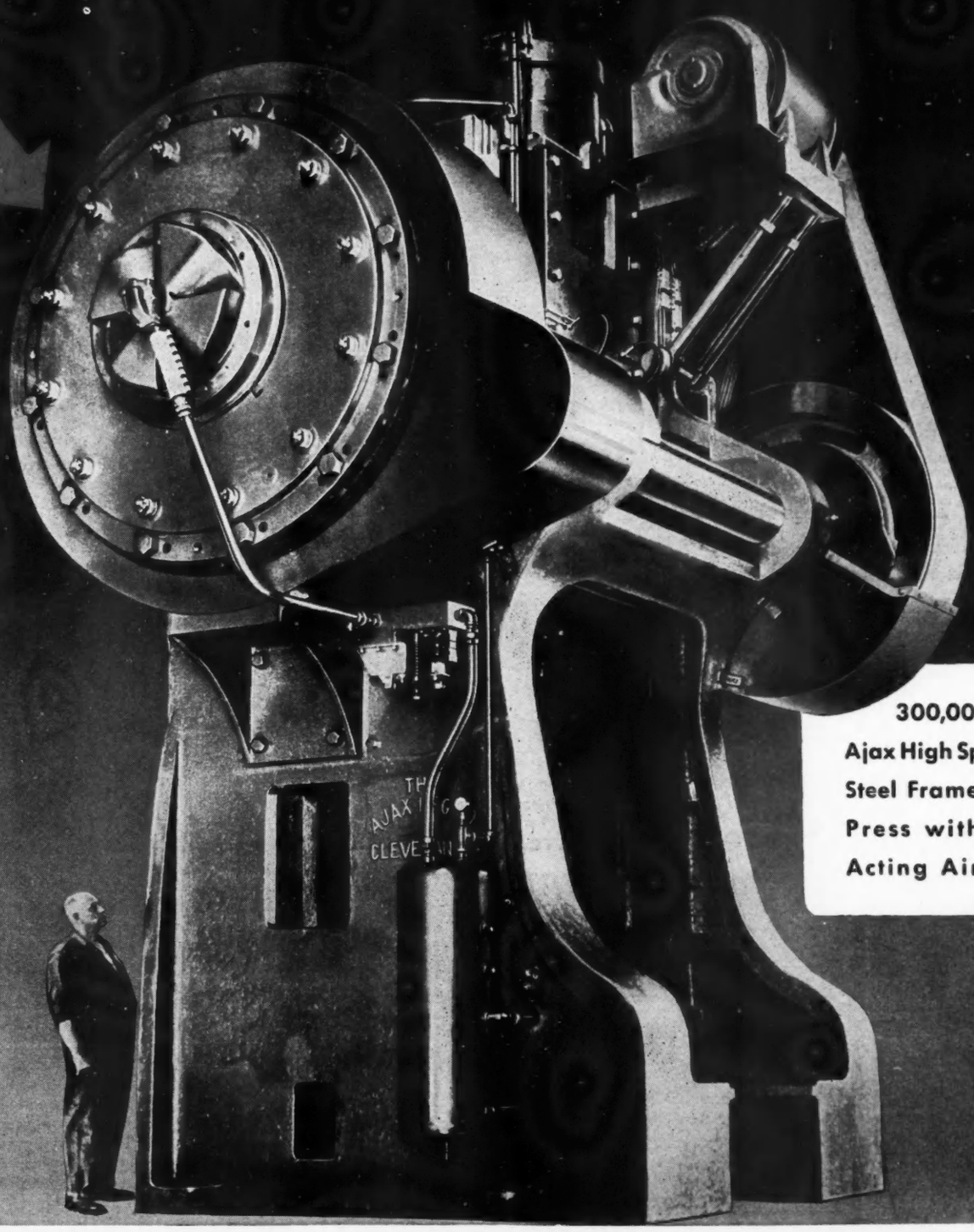
Production of cars and trucks in February expected to exceed 422,000. . . . January production 503,600 vehicles. . . . Pursuit plane to be added to two bombers to be set up for examination of parts manufacturers, in the Automotive Committee for Air Defense's Detroit headquarters. . . . **P & W reported farming out 60 per cent of parts to 300 subcontractors.** . . . Ford 12-cyl. engine, V-type, of 1500 to 1700 hp. to be liquid-cooled. . . . MEMA members appointed to ASI Show committee. . . . **Car makers to limit scarce metals, using substitutes in new models, Studebaker president Hoffman announces.** . . . Defense employment up in automotive centers. . . . **Thomas says UAW-CIO will do utmost to stop Ford production if collective bargaining demands not met. . . . Strikes tie-up $50,000,000 defense production in Allis-Chalmers and International Harvester plants.** . . . Machine tool orders expected to reach 1941 peak of $750,000,000. . . . Ingot operating rate, week ending Feb. 8, at 96.9 per cent. Heavy tonnages to automobile manufacturers. . . . **Tin prices up as result of ocean freight rate increase.** . . . APEM organizes aviation division; 73 member companies making parts. . . . Hudson gets $33,000,000 order to make plane parts. . . . Other defense orders to automotive plants reported in this issue total $33,320,979. . . . Standards Assn. adopts plant for quick development of emergency standards. . . . Hillman states less than two hours per worker lost in '40 strikes. . . . Many automotive plants reported enlarging for increasing defense orders. . . . Quote from lead article, **"Examples of success in manufacturing the millions of engine parts needed in our defense program are an inspiration to all of us who hope."**

March 1, 1941

Production of cars and trucks in February estimated at 495,000 vehicles; shortages of zinc, nickel and stainless steel being felt. . . . **Far East tension starts wave of tin buying.** . . . **Mexico steps up zinc production.** . . . **Government plans more tin and magnesium plants to cost near $4,000,000.** . . . Army order to Freuhauf calls for 4000 trailers.

(*Turn to page* 182, *please*)

Introduced by Ajax in January 1932–
Proved by 10 years gruelling service



300,000 Pound Ajax High Speed Solid Steel Frame Forging Press with Direct-Acting Air Clutch.

THE AJAX MANUFACTURING COMPANY

EUCLID BRANCH P.O. • CLEVELAND, OHIO

621 MARQUETTE BUILDING • CHICAGO, ILLINOIS

METAL WORKING MACHINERY

Forging Machines • Forging Presses • Forging Rolls • Bolt Heading and Forging Machines • Bulldozers • Hot Sawing and Burring Machines • Continuous Motion Rivet Heading Machines • Ajax-Hogue Wire Drawers • Bar Drawing and Straightening Machines • Wire Drawing, Straightening and Cutting Off Machines

(*Continued from page* 178)

. . . Ford order for 11,781 Army trucks does not contain "disputed labor clause." . . . Autocar awarded $1,248,000 truck order. . . . **Labor strife snags production in Motor Wheel and Packard plants.** . . . Knudsen says defense little hampered by lack of labor cooperation. . . . OPM authorizes purchase from British of 6000 small unset diamond dies. . . . **Defense contracts awarded the automotive industry and its suppliers from July 1, 1940, to Jan. 15, 1941, total $3,500,000,000.** . . . U. S. Civil Service announces examinations to secure technologists for defense work. . . . OPM issues bulletin to clarify priority and purchase systems. . . . Eaton, Hudson and Graham receive Government loans for expansion. . . . Taxicabs in use in '40 drop 5036, to 32,384. . . . **Industry earnings in 1940 rise 28 per cent; taxes 200 per cent, according to National Industrial Conference Board statement.** . . . National Defense Advisory Commission fixes prices on second-hand tools. Canada modifies ban on U. S. made passenger cars. . . . Defense orders to automotive companies to mean $1,490,000,000 in added payroll. . . . Quote from lead article, ". . . the automotive industry and its suppliers are carrying their share of the burden of producing defense equipment. . . ."

So-o-o Chlorinated Solvents are Short!

TWO VARIATIONS

Magnus Emulso-Dip and Magnus Emulso-Spray are two variations of the same new method.

●

Either can be used in many instances in existing metal washing machines with little alteration.

●

On many jobs, washing machines are not necessary. You can set up the necessary tanks and sprays yourself.

●

Where volume and the nature of the job make a new washing machine necessary, we will design Magnus Emulso-Dip or Emulso-Spray Washing Machines to meet your problems.

Here's an Unrestricted Material that Cleans by a Better Method!

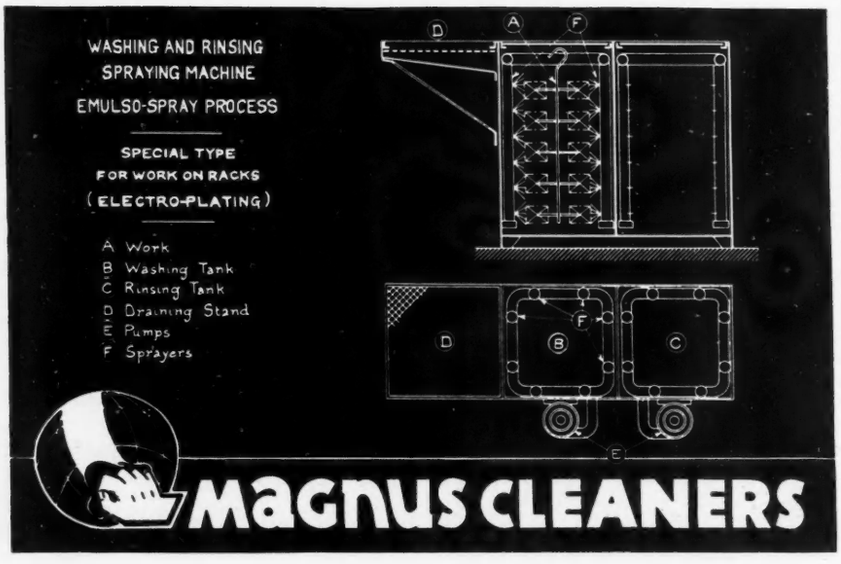
The Magnus Emulso-Cleaning Method replaces solvent or vapor degreasing. It actually costs less to do a better, quicker, more dependable job, even on smut and difficult dirts on which other methods fail.

This method has been successfully used for many months in defense plants all over the country.

It is applicable to *all* types of metal cleaning and can be used *without* heat on many operations.

If you are interested in sure-fire metal cleaning to insure steady, speeded-up production in the months ahead, write to us *now* for full details.

MAGNUS CHEMICAL CO., 196 South Ave., Garwood, N.J.



March 15, 1941

Production of cars and trucks in March expected to top 500,000 units. . . . **Dealer stocks mounting despite record sales.** . . . Lycoming announces four new horizontal-opposed aircooled engines for light aircraft. . . . **GM gets large order for shell cases.** . . . NMTBA working with Defense Commission has designed line of special machines for making shells. . . . **War Department lets contracts of $24,694,284 for construction of three midwest bomber final assembly plants.** . . . Consolidated to erect Texas plant costing $10,500,000 to build 50 B-24 bombers monthly. . . . North American receives $3,706,484 for Kansas City B-25 plant. . . . Glenn L. Martin order for B-26's totals $134,863,000. . . . **Chrysler technicians lay out section of Graham plant for manufacture of B-26's.** . . . Bell Aircraft conveyor for mass production to cost $1,250,000. . . . Defense major theme for ASTE Detroit Show. . . . NACA erecting $8,400,000 airplane engine research laboratory in Cleveland. . . . **UAW-CIO refuses to recognize Michigan Board's 30-day "cooling off" period: Strikes reported spreading.** . . . From $3,076,191 value in '31, auto radio output rises to $27,715,879 in '39. . . . Goodyear develops 100 per cent water-filled farm tire. . . . **Site selected for America's largest individual aircraft propeller plant.** . . . Five technical sessions mark SAE National Aeronautic meeting in Washington. . . . Railway Express Agency orders 2667 trucks. . . . **Auto makers moderate steel buying; week ending March 8 ingot capacity at 97.5 per cent.** . . . OPM declares priorities on nickel, magnesium and neoprene. . . . Quote from lead article, **"Despite the large number of unemployed, there is no pool of skilled labor available in this country."**

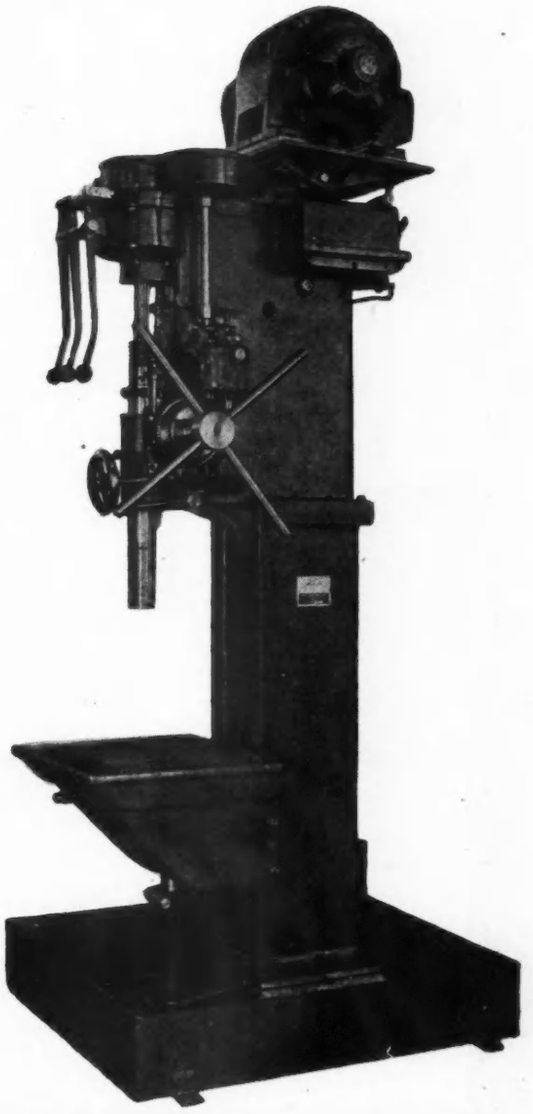
April 1, 1941

Production of cars and trucks in March totaled 517,000 units, exceeding predictions. . . . Metals priorities not yet a handicap; Ford technicians find means for saving 80 per cent nickel, 50 per cent aluminum, 50 per cent zinc. . . . **OPM assigns engine, propeller and materials standards work to SAE.** . . . Machine Tool Electrification Forum to discuss defense problems at April 14-16 Pittsburgh meeting. . . . **Canada limits output of '41 passenger cars.** . . . Total motor tax for '40 estimated at $1,775,515,000. . . . Widespread labor disputes keep Federal agents busy. . . . **AFL with help of 1400 policemen reopen International Harvester Chicago plant after long shutdown.** . . . Too many customers indulging in protective buying forces steel producers to ration remaining supply; **ingot capacity in final March week at 99.9 per cent.** . . . Buick and GM Truck add plant facilities. . . . GM orders for Army trucks total $86,000,000. . . . Total domestic rubber stocks at end of February in U. S. 163 per cent higher

(*Turn to page* 184, *please*)

BAKER DRILLS

**BOX COLUMN HEAVY-DUTY TYPE—
WIDE SPEED AND FEED RANGES ADAPTED
TO THE ARMAMENT PROGRAM**



Introducing Model No. 150 Universal Quick Change type, replacing well known Model No. 121. General specifications same as No. 121, with added feature of wider speed range and 12 Instantaneous Quick Change of Speeds.

Speed range 48 to 1120 R.P.M. Furnished standard with one set of Pick-off Gears giving total of 24 Speeds, 82 to 1120 R.P.M.

Multi-Vee Belt Drive.

Multi-Splined Spindle Drive.

Two-Piece Frame Design.

Capacity: 1½" dia. Drill in solid steel.

A very Flexible Machine for general purpose operations.

Write for New Circular and Engineering Data Sheet

"MACHINES: STURDY and EFFICIENT, AS FINE AS CAN BE BUILT"

BAKER BROTHERS INC. Toledo, Ohio, U.S.A.

DRILLING • BORING • TAPPING • AND • KEYSEATING MACHINES

(*Continued from page* 182)

than February, '40. . . . **Fulfilling its mission in allocation of U. S. bomber procurement program, Automotive Committee for Air Defense disbands.** . . . New defense labor board under OEM will assist in labor negotiations. . . . **Long list of critical items and materials vital to automotive industry feature new OPM priorities order; preference ratings to Army and Navy contracts.** . . . Defense Commission establishes ceiling prices on aluminum scrap. . . . Quote from lead article, "Our problem (training) . . . simply a matter of teaching our men new techniques, of giving them a diversity of skills."

April 15, 1941

First half of April U. S. and Canada production, all factories, estimated at 224,000 units. . . . **Ford shut down April 2 to 12 by UAW-CIO River Rouge strike; daily wage loss of $640,000 for 85,000 Rouge plant workers; extensive damage to plant and machinery; 1350 daily freight car movements to and from plant halted; NLRB after strike truce, orders elections.** . . . Effective April 1 Federal Export Control Board placed all types of rubber tires under export control; U. S. delivery during February of automotive casings totaled 4,910,365 units. . . . Frank W. Curtis to head ASTE in '41. . . . **Pontiac to build Navy ordnance materiel in agreement for plant expansion to cost $5,700,000.** . . . Saginaw Steering Gear to build Browning machine guns. . . . Other recent defense orders to GM units total $60,565,000; to other automotive companies reported in this issue, a total of $5,880,507. . . . Defense plant construction in Chicago area reaches $200,000,000. . . . **Steel mills continue at better than 99 per cent despite Ford strike and slack in British demand for carbon steels.** . . . ASTM appoints electroplating committee to study specifications and tests. . . . **OPM priorities list now contains over 200 primary military items.** . . . **Aluminum producers, fabricators and secondary smelters advised of allocation for defense purposes.** . . . Standard Oil Development develops fluid-catalyst process of gasoline production. . . . Quote from lead article, "As yet no interruption has occurred in the flow of raw materials to interfere seriously with automobile production."

STERLING
PISTONS
INQUIRIES SOLICITED
Do you need relief on any type of *Permanent Mold Castings* in your defense contract? Our foundry can help.
STERLING ALUMINUM PRODUCTS, INC.
SAINT LOUIS

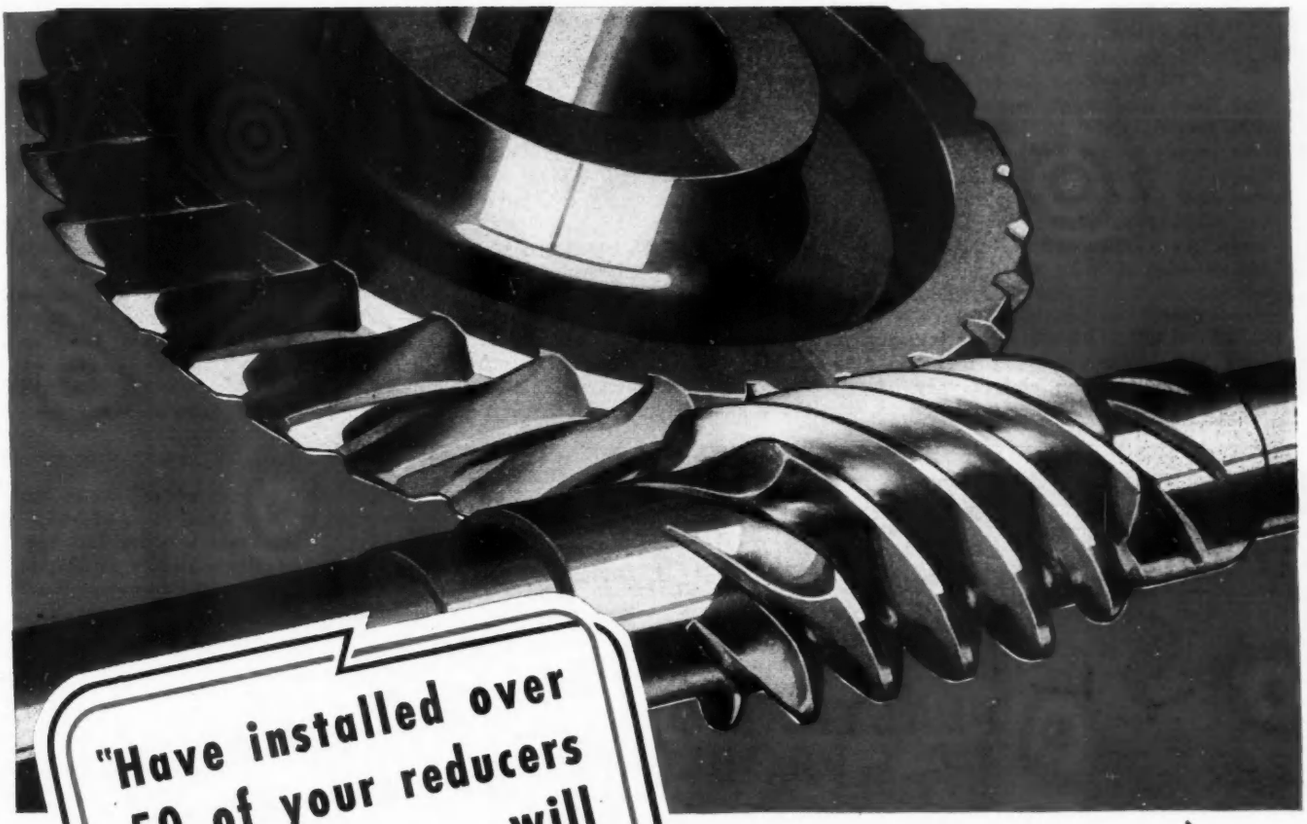
May 1, 1941

Production of cars and trucks in April estimated at 467,000 vehicles. . . . **Automotive industry tentatively allotted 80 per cent production on quota basis for 1942 model year, beginning Aug. 1, in Washington meeting with OPM director Knudsen.** . . . Chrysler orders machinery to make 40-mm. rapid-fire antiaircraft guns for Navy. . . . Willys to make shell forgings for 155-mm. guns on Government order; company will also build 1500 "blitz buggies". . . . **"Priorities and Defense" handbook ready for OEM distribution.** . . . Auto cut not likely to affect steel prices; ingot capacity at 96 per cent in last April week; **some furnaces close because of coke shortages resulting from mine strike.** . . . Aluminum for pistons has highest priority rating in new OPM order. . . . Machine tool shipments for March up $3,400,000 to $57,400,000. . . . Commerce Department announces Britain absorbed 59 per cent of total U. S. February exports. . . . **Threatened strike in 60 GM plants averted by truce.** . . . GM reports 299,549 on payroll during first quarter. . . . Arc Welding Foundation sponsors $200,000 industrial award program. . . . Accredited list of ECPD lists 125 educational institutions. . . . **Wright engine shipments in March reach new peak.** . . . Westinghouse E & M with American Rolling Mill, produce Hipersil, new steel of high magnetic permeability. . . . Quote from lead article, "History of elections in the industry has shown that the workers seldom vote for 'no union' in preference to union representation."

May 15, 1941

Production of cars and trucks in May predicted to fall slightly short of April 553,231 total. . . . Reduction of output by 20.15 per cent for '42 model year stimulates buying. No cut for

(*Turn to page* 186, *please*)



"Have installed over 50 of your reducers in 20 years . . . will certainly buy more *Clevelands* as needed"

THIS large Eastern Company first bought 6 Cleveland Units in 1922 and has increased its purchases since then to a total of more than 50. This evidence of satisfaction with Clevelands is confirmed in a letter from one of its Engineering Executives:—

"Our Cleveland Worm Gear Drives have given an excellent account of themselves. Of the 50 or more we purchased, 13 are driven by 40 H.P. motors and have operated day and night.

"We certainly will buy more of your Drives if we install additional machines."

Install Clevelands on *your* new equipment and help insure trouble-free operation and maximum output—8 hours a day, or 24.

The Cleveland Worm & Gear Company, 3285 East 80th Street, Cleveland, Ohio.

Affiliate: The Farval Corporation, Cleveland, Manufacturers of Centralized Systems of Lubrication
In Canada: PEACOCK BROTHERS LIMITED

CLEVELAND WORM GEAR *Speed Reducers*

(*Continued from page* 184)

companies making 2000 units or less. . . . **NMTB President Geier says machine tool equipment now in plants could readily yield 10 per cent more under proper tooling and operating conditions.** . . . Upward revision of bomber production of 4-engined planes finds Ford already supplying complete airframes for Consolidated B-24's. . . . Olds awarded contract for 20-mm. aircraft cannon. . . . Other recent defense orders reported in this issue total $22,492,617. . . . **GM-UAW-CIO negotiations center on closed shop and wage increases. . . . . Union claims vary at Rouge. . . . UAW-CIO files intention to strike at Hudson Motor.** . . . DuPont to build huge neoprene plant in Kentucky. . . . **OPM orders more metals, and Diesel engines, on priority list.** . . . New Wright Aero plant starts production on 14-cyl. Wright Cyclone engines. . . . Increasing steel tonnage going to defense; ingot capacity for second May week at 96.8 per cent. . . . **Price Administrator urges 20 per cent car tax.** . . . Ford of Canada has contracts for 10,000 motorized vehicles for Canada, 40,000 for Britain. . . . **Jackson hints anti-trust law moratorium during emergency.** . . . National Motor Boat Show set for Jan. 9-17 in New York. . . . . Ford sells Charlotte, N. C., branch to Army for Quartermaster Depot. . . . Representatives of ten U. S. companies in Argentine form export corp to develop U. S. sale of Argentine products. . . . William L. Batt awarded Gantt Memorial Medal. . . . Polaroid has new anti-glare screen. . . . Thickol synthetic rubber plant opens in Michigan. . . . SAE meeting at White Sulphur, June 1. . . . Wright Field aerodynamical laboratories to be completed this summer at cost of $2,500,000. . . . Aircraft makers to date have been asked to build 44,000 military planes; 7000 have been delivered; manufacturing floor space has increased 82 per cent to 31,383,967 sq. ft.; plants on 24-hour 6-day basis.

To help meet the demands of war production in the automotive and aviation industries, molded plastics offer many outstanding advantages—among them extremely light weight, insulation against heat and electricity, resistance to the action of many chemicals, and often most important of all, the opportunity for fast, economical quantity production.

For the manufacturer desirous of utilizing these advantages to the utmost, Chicago Molded Products Corporation offers a service exceptional in its completeness, covering every phase of plastic molding—engineering, laboratory research, design, mold fabrication and the production of plastic parts—all in the largest and best equipped custom molding plant in the Middle West.

COMPRESSION
INJECTION
TRANSFER and
EXTRUSION
MOLDING of
SYNTHETIC
PLASTIC
MATERIALS

FOR INSTANT ACTION on your war production job in plastics, phone us at Chicago, CAPitol 1020. A member of our engineering staff, fully qualified to help you with any government work involving molded plastics, will be sent to you immediately, anywhere in the United States.

CHICAGO MOLDED PRODUCTS CORP.
1039 NORTH KOLMAR AVENUE CHICAGO, ILLINOIS

June 1, 1941

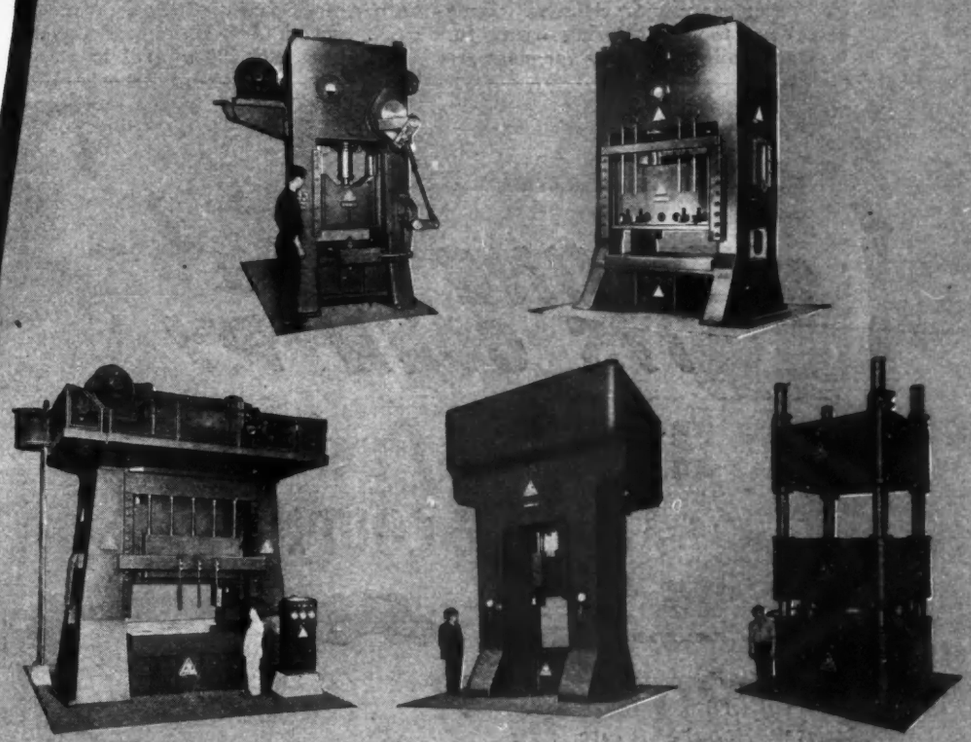
Production of cars and trucks in May predicted to pass April total of 553,231 units. . . . **Automobile sales for April highest in industry's history at 557,192.** . . . Federal excise tax between 7 and 15 per cent looked for. . . . Nash receives "intent order" for $8,500,000 assignment for several Reo buildings bought by Defense Plant Corp. for propeller manufacture. . . . Expanded bomber program accounts for additional $13,047,838 orders to automotive companies. . . . Steel inventory control system restrains over-buying; heat-treated carbon steel eases tension on other types; charcoal pig up $1, in line with other grades; 99.9 per cent ingot capacity in last May week. . . . **Canadian makers ordered to reduce contents of U. S.-made parts in their cars by 20 per cent to conserve foreign exchange.** . . . Shipment in April of automotive casings up 9.6 per cent to 6,049,517 units. . . . '42 ASI Show set for Atlantic City, Feb. 23-28. . . . **GE head advises long-term planning for non-defense industries.** . . . Machine tool shipments in April reach $60,300,000 mark. . . . Makers of "off-the-shelf" supplies get A-10 preference rating in new Priorities plan. . . . **Union in Ford strike asks wage rise, seniority system and paid vacations: Hudson and Ex-Cell-O strikes settled.** . . . NADA opposes car tax increase before House committee. . . . GM to operate new $8,000,000 anti-aircraft machine gun plant on Canadian orders; Ford Ltd. to make military trucks and machine gun carriers. . . . Chevrolet assembles its 1,000,000-th 1941 model. . . . Allison airplane engine requires 70,000 distinct inspection operations before certified to fly. . . . Quote from lead article, "Up until this very minute there hasn't been any airplane company lacking aluminum in any serious way."

June 15, 1941

Production of cars and trucks in June estimated to pass '37 total of 521,153 units. . . . **A.M.A. President Macauley announces at June 5 Detroit meeting that more than half billion pounds of critical material will be available to defense production through release from passenger car and truck curtailment.** . . . OPM orders shift in steel types from

(*Turn to page* 190, *please*)

VICTORY



REQUIRES TOP PRODUCTION FOR 1942

CLEARING Mechanical and Hydraulic Power Presses of welded steel construction, a few of which are illustrated, are now giving twenty-four hour uninterrupted service in numerous plants throughout the country producing cartridge cases, projectiles, parts for tanks, army trucks, gun mounts, aircraft and numerous other war products.

Let CLEARING engineers solve your production problems.

CLEARING MACHINE CORPORATION
6499 WEST 65th STREET, CHICAGO

CLEARING
MACHINE CORPORATION
CHICAGO

sheets and strips to plates to meet defense needs. . . . Vultee organizes manufacturing research division. . . . Goodyear in $3,700,000 plant to make airplane parts. . . . Firestone to make gun mounts and carriages. . . . Yellow Truck has $14,000,000 truck order. . . . Other defense orders recently awarded automotive industry total $28,038,000. . . . Aviation Corp to build $8,700,000 plant in Ohio. . . . Polk reports from 107 principal cities first 18 days of May show gain of 42 per cent in new passenger car registrations. . . . **Douglas, Vega to build Boeing flying fortresses, pooling resources for mass production.** . . . Industry-wide control of synthetic rubber extended by OPM to all types. . . . Under new agreement minimum hourly rate at Briggs set at 85 cents, highest for aircraft industry. . . . **GM and Chrysler avert strikes with pay boosts.** . . . Wilson asks 25 per cent rise in 100 octane fuel output. . . . Louis Chevrolet dies in Switzerland, June 6, age 63. . . . **Dunn report estimates 20.15 per cent auto reduction will cut steel output 9,000,000 net tons.** . . . College courses in tool engineering proposed by American Society of Tool Engineers. . . . Lincoln Arc Welding Foundation announces $200,000 awards to automotive and aircraft fields. . . . P & W, Sheffield, Merz and Greenfield Tap & Die open gage plants.

SERVING ITS COUNTRY
HANSEN Push-Tite
AIR HOSE COUPLING
The call today is for speed and more speed to keep 'em flying and rollin' and that's why you will find Hansen Push-Tite air hose couplings right in the thick of the war production fight, being used extensively by the Army, Navy, aviation and industrial plants throughout the country.
Hansen Push-Tite air hose couplings are rugged, fast, economical, easy to operate and trouble proof. A slight push of the plug into socket . . . it's connected absolutely airtight and the air is automatically turned on, a gentle pull . . . it's disconnected and air is instantly turned off. None of the customary twisting or turning of parts in order to connect or disconnect and the coupling's complete swiveling action prevents kinking or twisting of hose.
WRITE TODAY FOR FREE CATALOG
Hansen MFG. CO.
INDUSTRIAL Air Line EQUIPMENT
1786 EAST 27TH STREET . . . . CLEVELAND, OHIO

July 1, 1941

Production of motor cars and trucks in first six months approximated 3,162,000 units; June output, an estimated 548,000. . . . **Knudsen said he expected '42 model production to be cut beyond 20 per cent, by labor and materials priorities rather than Government.** . . . Crude rubber rationing not expected to impair automotive industry; **increase in retreading and eliminating white wall tires are likely results of shortage.** . . . More motor companies gear for aircraft parts. . . . Chrysler order on monster tanks to be doubled. . . . Continental's orders for tanks, automotive and aircraft engines reach $72,000,000. . . . Other recent orders to automotive plants for defense total $18,141,647. . . . **Higher costs, lower earnings, claimed factors in car price increases.** . . . Forty groups exhibit test apparatus at ASTM Chicago meeting. . . . **Steel users feel tightening of supply; demand for low-cost used cars curtails scrap flow; OPM limits primary nickel in stainless steel to 40 per cent.** . . . Retailers not held to 40-hour, 30-cents-an-hour Wage Law unless 75 per cent of sales are retail. . . . **OPACS and OPM plan rubber reduction; new OPM plan calls for reduced consumption during last 1941 months.** . . . Chrysler Institute graduates 94. . . . **Granting of union shop and check-off in Ford UAW-CIO contract surprise to industry.** . . . GM President Wilson and other motor men receive honorary degrees by Wayne University. . . . Record export of motor boats and engines in first quarter. . . . **OPM recommends 400,000,000 pound magnesium production for defense needs.** . . . Machine tool shipments in May estimated at $60,-800,000. . . . **NADA study reveals automobiles outweigh all other transportation 4 to 1.** . . . DuPont survey shows 110 plastic parts with 225 possible applications used on composite 1941 automobile. . . . **API estimates tanker shortage of 636,000 tons in final '41 quarter.** . . . About one-third of present army will be engaged in motor transport work. . . . Quote from lead article, ". . . The whole program of expansion (Army) is so vast and so rapid that vehicle requirements may be revised upward in the next few months."

July 15, 1941

Production of cars and trucks in first half of July estimated at 240,000 vehicles. . . . **Plants speeding retooling under 20 per cent cut impetus.** . . . **Navy to have new torpedo bomber, the TBF-1, built by Grumman.** . . . **Aircraft fire hazards on ground and in air receiving attention.** . . . Exploding rivets reported speeding aircraft production. . . . **Over 600 labor disputes in Michigan first half of '41; less than 10 per cent reach strike stage.** . . . Wage rates continue upward in Detroit and Ohio defense plants. . . . **Approval of 11 of 19 members of the**

(*Turn to page* 192, *please*)

WHAT 5¢ CAN MEAN TO YOUR FUTURE

★

HOW MUCH ALUMINUM we are making now is a censored secret. We are determined it shall be sufficient to the need.

HOW MUCH WILL BE AVAILABLE, after the war, is idle talk now.

THE PRICE OF ALUMINUM is the thing that's important. It is important to the war, because our reduction of the price of ingot from 20c to 15c is saving the Government many millions of dollars a year.

THAT FIVE CENTS doesn't make aluminum one whit more useful for war purposes—only more patriotic.

BUT IT DOES MAKE aluminum terribly important to the peace. Real peace means jobs for all. Jobs-for-all come into being only when people *want to* buy and *can* buy: Which means new things, better things, at a price.

IMAGINEERING is the word we have coined to describe the thinking which is used to get those new things ready. Imagineering is letting your imagination soar and then engineering it down to earth. Imagineering needs tools as well as brains.

THAT FIVE CENTS we've lopped off the price of aluminum, so far, has more potentialities of creating new things and better things, at a price, than any single thing we know of.

THAT'S WHERE YOU COME IN. You are the man *who.* You are the man America is counting on to make the jobs Americans are going to need. You are the man who is going to do the *Imagineering*, in your specialty, that is going to win the place for yourself, your employees, your associates.

YOU ARE GOING TO DO IT, and we hope you are going to let Alcoa help. We can, and we want to.

Aluminum Company of America, 2110 Gulf Building, Pittsburgh, Pennsylvania.

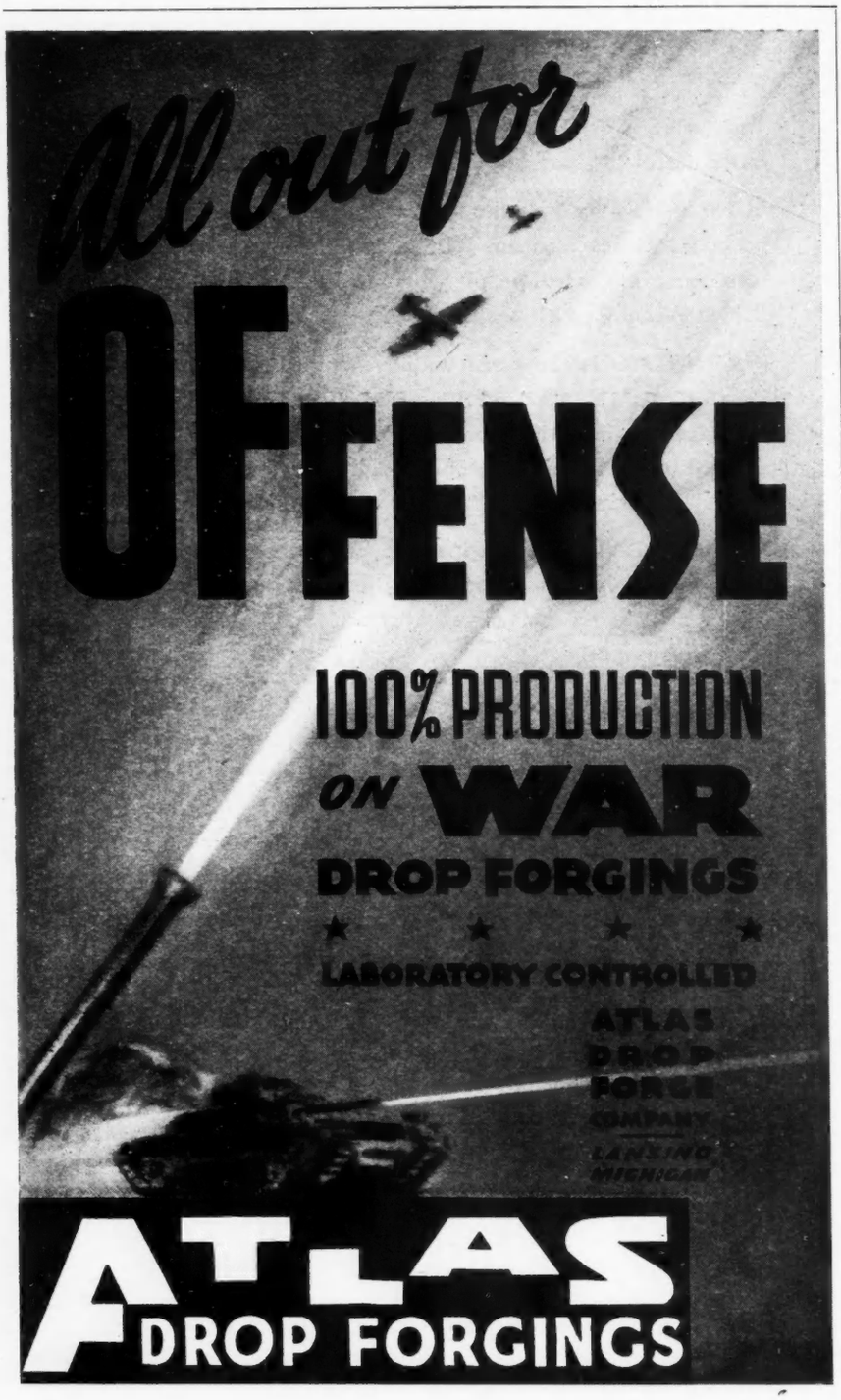
ALCOA ALUMINUM

(*Continued from page* 190)

Automotive Defense Industry Advisory Committee announced by OPM. . . . Motor Truck Sub-Committee also announced. . . . Recent defense orders to automotive plants reported in this issue reach total of $416,345,130. . . . ASI Show changed to third week in January. . . . **Metal supplies reported far short of civilian requirements; with exception of plate, demand for steel predicted only 10 per cent above military needs; alloy steel demand expected to be double tonnage available for civilian purposes; only 40 per cent of copper, 50 per cent of nickel available of civilian needs.** . . . Chromium now under full priority control. . . . Thikol synthetic rubber plant to increase output. Quote from lead article, **"Yet despite these pleas, despite the emergency, despite immediate defense needs, despite the sacrifices which have been asked of the people, non-defense appropriations of the Federal Government were increased almost nine million dollars over last year."**

August 1, 1941

Production of cars and trucks in July estimated to have reached 460,000. . . . OPM and OPACS reach truce on automobile production controversy, but new quotas not fixed yet with industry in production on new models. . . . **OPACS believed to want 50 per cent cut.** . . . Standards Bureau develops spark plug indicator for Navy planes. . . . **OPM announces plans to scrap millions of old cars.** . . . Chevrolet begins retooling for $89,000,000 P&W aircraft engine orders. . . . Continental delivers first Wright Whirlwinds for Army. . . . Standards Bureau new $500,000 laboratory for metals and alloys testing. . . . **Changeover period in auto industry may ease steel demand; OPM approves 6,508,950 tons increase in pig iron capacity.** . . . 500,000 tons Chilean copper await shipping facilities to U. S. . . . **Tin market uneasy over Japan designs in Indo-China.** . . . Knudsen orders defense orders go to plants on non-defense production. . . . This year's Metal Congress to go all-out for defense. . . . **WPA to assist Public Roads Administration in truck and bus inventory.** . . . Dow establishes new magnesium alloy foundry. . . . Fred Fisher dies in Detroit, July 14. . . . **AMA study of automobile use reveals 274 billion passenger-miles per year.** . . . June rubber consumption breaks records with increase of 19 per cent to 84,912 long tons. . . . Goodyear to erect $500,000 Arizona plant for airplane parts. . . . **OPM issues priority ruling on cutting tools.** . . . Additional defense orders to automotive plants total $298,112,177. . . . June machine tool shipments mark new high at $63,400,000. . . . Buda celebrates 60th birthday.

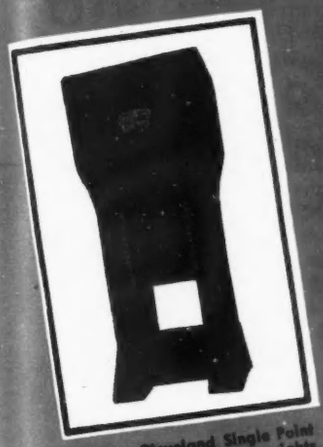


August 15, 1941

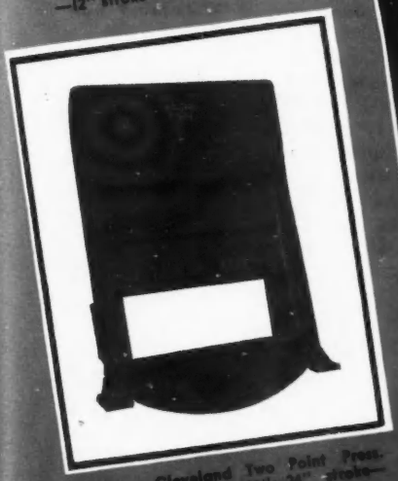
Production of cars and trucks in first two weeks estimated at 74,500 vehicles; first half year's sales, 2,548,209 units. . . . Automotive industry waits while OPM and OPACS mark time. . . . **Automotive Industry Defense Committee studying possible effect on employment of deeper production cuts.** . . . Henderson believes industry will need more time for defense orders than provided by 50 per cent cut. . . . Local auto trade secretaries urge manufacturers to cooperate in shows. . . . **Thomas reports present UAW-CIO membership 528,213.** . . . Packard in production on Rolls Royce Merlin engines. . . . GM defense deliveries to June 30, $209,500,000. . . . Additional defense orders to automotive industry total $124,350,624. . . . Army tests new Lockheed transports. . . . GE plans Indiana plant to make turbo-superchargers. . . . **OPM establishes 100 per cent steel priority; iron and steel scrap shortage a problem.** . . . Fisher gets Naval excellence award. . . . Aeronautics Administration announces civilian pilots double in year to 82,277. . . . Walter E. Blanchard resigns NADA post. . . . Canadian Munitions and Supply to build $349,000 propeller plant. . . . Eight representatives of parts manufacturers named to Automotive Industry Defense Advisory Committee. . . . **OPM halts manufacture of white sidewall tires, effective Aug. 23.** . . . Jessop Steel expands plant. . . . Quote from lead article, "Warplane designs can be

(*Turn to page* 194, *please*)

MODERN PRODUCTION Calls for MODERN PRESSES



Modern Cleveland Single Point Press. 36" between the uprights —12" stroke—250 tons capacity.



Modern Cleveland Two Point Press. Bed Area 60" x 136"—24" stroke—350 tons capacity.

This series of Modern Cleveland Presses embraces three types known as Single Point, Two Point and Four Point, and each type can be furnished in sizes and capacities to suit requirements. The gears, which run in a bath of oil, are located in the box type crown together with the drive unit, and any of these Presses can be furnished with either a hydraulically or pneumatically operated friction clutch, electrically controlled. The Four Point Press, shown above, has an 18" stroke, capacity 300 tons and a bed area of 90" x 136".

Modern Presses THE CLEVELAND PUNCH & SHEAR WORKS COMPANY *Cleveland, Ohio*

NEW YORK • CHICAGO • DETROIT • PHILADELPHIA • PITTSBURGH

(*Continued from page* 192)
standardized for only a limited period. It is a case of survival of the best in aerial warfare."

September 1, 1941

Production of cars and trucks in August put at 90,000 mark. . . . With August production finished, OPM finally sets production allotment at 73½ per cent for four months period, August, September, October, November; OPM-OPACS order results in setting output for next three months at 69 per cent of same 1940 period. . . . **Raw materials situation, incipient metal shortages continue to be production restricting factors.** . . . Manufacturers found for 70 Wright engine part displayed in Defense Contract Service quarters. . . . **Nineteen parts makers charge off 54 per cent of earnings for Federal income taxes, an increase from 28 per cent; aircraft net income less.** . . . Detroit's 41st auto show cancelled. . . . **UAW-CIO sets goal of million members by '45.** . . . OPM full steel control depresses orders. . . . ALCOA new plant to boost company's aluminum production to 400,000,000 pounds annually. . . . **Russian buying ups Singapore tin prices.** . . . Liberty Aircraft buys Autocar control. . . . GM Institute graduates 406. . . . Harrison Radiator Division of GM to build $100,000 auto and aviation refrigerated test tunnel at Lockport, N. Y. . . . **Machine tool shipments in July drop $5,100,000 to $57,900,000.** . . . Half-tracs and blitz buggies in anti-tank battalion tests by Army. . . . Second quarter consumer replacement sales of tire casings up at 13,078,000. . . . **Economic importance to nation of automobile industry presented in new AMA yearbook. . . . Commerce Department reports 72 per cent of world's motor vehicles in U. S.** . . . Civil Service Commission stresses need for industrial specialists. . . . Smithsonian makes photographic presentation of U. S. $2,000,000,000 defense job. . . . Quote from lead article, "Labor displacement in the midst of plenty will naturally follow restrictions of output in the automotive industry."

SPUNSTEEL

V-GROOVE PULLEYS

Fan & Water Pump, Generator, Compressor & Crankshaft Drive.

For use on Automotive Passenger Car and Truck, Industrial, Tractor, and Marine Engines.

Now finding a special use on Army Mechanized Equipment.

Also equipped to make special light and medium stampings, do light special machining, and make assemblies therefrom by the copper weld method.

Also Screw-Type Jacks, Double and Single Action for passenger car to heavy truck use.

THE SPUN STEEL CORPORATION

Canton, Ohio

September 15, 1941

Production of cars and trucks in August estimated at 174,700 units; season reported lacking zest; prices on '42 models show increases of 15 per cent to 25 per cent. . . . **OPM to work out month-to-month production quotas, due to materials problem.** . . . Henderson will have production "say-so". . . . Ford now has increased orders for P&W 2000 hp. engines; production starts. . . . **Two million man-hours spent preparing Chrysler plants for B-26 bomber output.** . . . U. S. industry payroll now 2¼ billion. . . . Army authorizes purchase of field hospital units with operating facilities. . . . **OPM and manufacturers tentatively agree at Detroit meeting on plans to protect seniority rights of defense workers. . . . Murray grants union shop and check-off. . . . UAW-CIO organizes Champion plant.** . . . War Department regulations favor sub-contracting; suggest division of awards among bidders. . . . Armament exhibit for Buffalo Automobile Show, Oct 11-18. . . . **Rubber Advisory Committee appointed under OPM.** . . . Taxes on motor trucks to total $475 millions in 1941. . . . **Four times as much crude oil processed, nine times as much motor fuel made in '40-'41 year than in first year of World War I.** . . . 4500 U. S. retreading plants do $45,000,000 business. . . . **Canadian car output restricted 44 per cent of '40.** . . . Amphibian Car gets order for new type reconnaissance cars. . . . Ground broken for Goodyear synthetic rubber plant in Connecticut. . . . Quote from lead article, ". . . to carry out the board's (SPAB) avowed objective of 'stripping civilian economy of non-essentials' and yet keep it in good running order, is the cause of much perplexity."

October 1, 1941

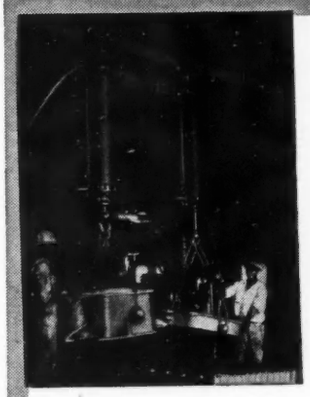
Production in December of passenger cars for civilian use to be curtailed 48.4 per cent, to 204,848 units; light trucks, 9 per cent during 4-month period ending Nov. 30. . . . **Heavy and medium truck production expected to be in excess of '40, due to defense needs.** . . .

Priorities and quotas also applied to parts. . . . Drastic curtailment of automobiles held unnecessary and threatening. . . . **Plan contemplated by OPM to reduce steel specifications, sizes and shapes, particularly alloy steels, to increase production with present facilities.** . . . Wage rates raised at eight West Coast aviation plants at OPM behest. . . . Ford and GM planning for mass tank production. . . . Ford airplane engine orders again increased. . . . **Machine tool shipments in August at industry's all-time high of $64,300,000.** . . . Industry asked to find job for soldiers completing service. . . . **Japan car output drops 33 per cent.** . . . American Bosch plans $2,000,000 magneto plant. . . . Greyhound orders 366 buses. . . . Tax expectancy of $600,000,000 for 1941 cars. . . . **From July, '40, through July, '41, the automotive industry and its suppliers have accepted contracts in the amount of $5,843,424,331.** . . . Chrysler tank arsenal turns out tanks one year after plant construction. . . . Hudson's Naval Ordnance plant in 14 buildings. . . . **Estimated metals needs for '42 contemplated car production, 3,366,280 tons.** . . . Present production, distribution and servicing in automotive industry employs 1,500,000 persons; payroll $2,213,000,000 annually. . . . Airplane plants increase 375 per cent since '39. . . . Aero engine plants increase 500 per cent. . . . Creosote investigated as blend for Diesel fuels. . . . Quote from lead article, **"The automotive industry is the natural arsenal of Uncle Sam because of the character of its normal products, its vast capacity, its skillful personnel, its demonstrated expertness in combining high quality of output with mass production. . . ."**

October 15, 1941

Production of cars and trucks in October expected to exceed 360,000 units; September output 254,600 units; 537,000 units to be built in October and November under restricted quota. . . . **Plants settle down to capacity output of plane parts;** Murray begins shipment on $18,000,000 order from Douglas. . . . Ford has $231,741,500 order for B-24 bombers and parts; another of $182,955,559 for P&W aircraft engines. . . . Chevrolet awarded $37,161,530 to build P&W aircraft engines. . . . Other recent defense awards to automotive plants reported in this issue total $64,974,216. . . . **Automotive production cut stirs labor unrest; prospective Michigan unemployment 100,000; orderly transfer to defense planned.** . . . APEM consider plans for pooling facilities geographically. . . . Argentina lifts quota on cars, trucks and parts. . . . Standards Bureau seeks solution to icing problems in flying. . . . Bell Aircraft triples Niagara Falls plant on Government $8,456,175 loan. . . . San Francisco Auto Show, Oct. 18-26. . . . National Metal Congress and Exposition, in Philadelphia, Oct. 20-25; more than 100 specialists in industrial defense and Government planning to be

In WAR or PEACE . . .
HERE'S HOW TO STEP UP PRODUCTION!
Save Time — Save Labor — Lower Costs



CURTIS AIR HOISTS

Curtis One-Man Air Power Hoists provide faster, easier, more accurate lifting; they release skilled labor for other jobs; reduce man power fatigue and save time and money.

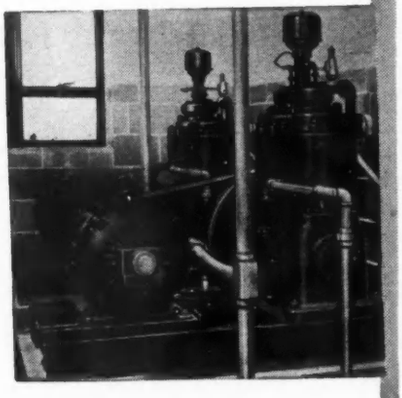
Curtis Air Hoists have less dead weight, permitting lighter supports and easier moving. Operated by any workman—immune to overloads. Up to 10 tons capacity, pendant, bracketed, and rope compounded types.

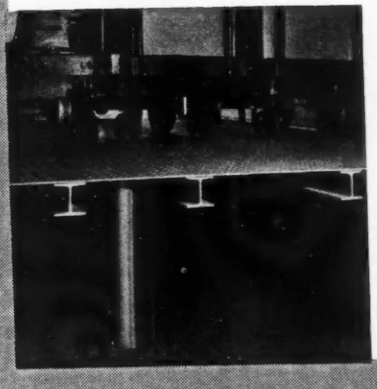
CURTIS MODEL "C" AIR COMPRESSORS

Thousands of industrial users are lowering their costs by replacing old equipment with efficient, dependable, precision built Curtis Air Compressors.

Curtis Model "C" Air Compressors offer you:

- Maximum capacity per dollar of first cost
- Highest volumetric and mechanical efficiency
- Maximum air delivery per unit of power input
- Lowest maintenance expense and oil consumption
- Capacities up to 360 cfm.





CURTIS HYDRAULIC LIFTING CYLINDERS

Curtis Hydraulic Lifting Cylinders are solving a wide variety of lifting and lowering problems in hundreds of industries. They are cutting handling costs in plants throughout the country.

They offer a simple, dependable, safe hydraulic device for raising or lowering materials quickly, accurately, and economically. They are adaptable to your special purposes.

SEND FOR FREE BOOKLET — Our free booklet, "How Air Is Being Used in Your Industry," will give you many valuable suggestions on the advantages of the use of Curtis air power equipment in your plant. Send the coupon for it today.

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CURTIS PNEUMATIC MACHINERY DIVISION OF CURTIS MANUFACTURING COMPANY
1917 Kienlen Avenue — St. Louis, Missouri

Please send me booklet, "How Air Is Being Used in Your Industry."

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presented. . . . **New tank schedule spurs greater steel plate output; production may top 89,000,000 tons.** . . . More than 7000 planes on order for Canada, in Canadian plants. . . . Quote from lead article, "The cars of 1942 will uphold the American tradition of fine quality and long life in its motor cars."

November 1, 1941

Production of cars and trucks in October estimated at 395,000 vehicles. . . . January passenger car production quota set at 204,848 or 49 per cent of January, 1941, production. . . . Eaton increases production floor space to 34 acres. . . . **OPM urges plants to save alloy content in scrap steels; segregating grades to permit reclamation.** . . . Scrap resulting from conversion losses said may reach 70 and 80 per cent. . . . **Allocation of lead tightened; copper held to within 100 civilian uses.** . . . **AMA sets up Replacement Parts Committee with J. F. Page of Packard as chairman.** . . . War Department offers agreement under which Ford and Willys will make quarter-ton "jeeps". . . . National Aircraft Standards Committee to discuss standardization of additional items in New York, Nov. 11-13. . . . **Spicer Toledo plant production held up when UAW-CIO workers refuse to handle tank, half-track and "jeep" parts from Spicer Hillsdale plant under UAW-AFL contract.** . . . Suppliers begin to feel strife for control of workers in small factories. . . . **Car and parts exports reported up 22.5 per cent in August to $25,306,100.** . . . Automakers step up defense orders; bomber parts and assemblies plants in full swing. . . . Chrysler prepares for higher tank production peak. . . . $74,338,783 additional aircraft engine order for Studebaker. . . . Other recent defense orders to automotive plants reach $47,674,566. . . . Automotive Advertisers Council incorporates. . . . Navy "E" awarded to automotive companies abreast of or ahead of their schedules. . . . Reynolds to erect third aluminum plant. . . . Ford installs new 400,000 X-Ray machine to detect castings flaws. Rubber consumption off 3.1 per cent to 53,655 long tons in September. . . . New Aluminum Company mill to cost $15,000,000. . . . International Harvester taps new 150-ton open hearth furnace. . . . **Depending upon availability of scarce materials, light truck production for civilian use limited by OPM to 109,000 units in 5-month period ending Dec. 31.** . . . Defense problems feature SAE Los Angeles meeting, Oct. 30-Nov. 1. . . . **Brightwork in stock for production beyond deadline to be relegated to scrap under OPM effective after Dec. 15.** . . . Pending new order by government priority experts, OPM has extended preference ratings A1c assigned to airplane engine and propeller makers; and A1d assignd to airplane builders. . . . In three months since its inauguration, WPA in-plant training plan is in use in 250 plants in 72 cities. . . . Quote from lead article, **"An obstacle to four-shift operations has been the unions' refusal to waive time and a half or double time for Saturday and Sunday work."**

CLEANER OIL MEANS LESS SHOP WORK ON ENGINES

Take Steps Now to Offset Man Shortage

With a growing shortness of skilled maintenance mechanics—there is greater need than ever to keep the oil in your motors clean in order to reduce engine overhauls and delays.

The almost universal selection of MICHIANA Oil Filters by expert engineers of engine, bus, truck, tractor and ship builders—are reasons for their rapidly increasing use.

Two Types of Filters

The Re-Packable Element H-W MICHIANA Filter incorporates the depth principle of thorough cleansing, and insures low filter maintenance expense. Only the Wastex filtering material is replaced.

The "Throw-Away" Cartridge Type does the same thorough job of oil cleaning. When servicing, the complete cartridge is replaced. Where the miles operated per month are not so great—or where shop facilities are not so available, the "Throw-Away" Cartridge Type is recommended, since it is so easy to service and there is assurance that each cartridge is exactly correct for its particular filter.

Equip with MICHIANA Filters and get more mileage, reduced oil costs with less demand on your shop mechanics' time. Write for Bulletin 839. MICHIANA PRODUCTS CORPORATION, Michigan City, Ind.

Cat. No. 2500. Re-Packable Element Type Filter.

To service the above type Filter, remove used Wastex and pack with new supply.

To service the Replaceable type Filter, throw away used Cartridge and replace with a new one.

MICHIANA
***Duo-Flo* OIL FILTERS**

Write for Bulletin 839.

November 15, 1941

Production of cars and trucks in first half of November estimated at 195,000 vehicles. . . . Material shortages and labor disturbances curtailing output below quota allotments. . . . For December, production of light trucks under 1½ tons cut 29 per cent to 22,000 under OPM permit. . . . **Car and truck registration at all time high in '41, at 33,681,499.** . . . OPM grants A1c preference rating to machine tool builders. . . . New and lighter shade of "machine tool gray" endorsed by NMTBA; one-third better lighting reported. . . . Contract for 40-mm. detonating fuses raises total of Willys defense orders above $50,000,000 mark. . . . **Fisher first in production on bomber procurement program.** . . . Cadillac to produce 13-ton tanks under the expanded tank program. . . . Chrysler receives award of $18,875,000 for expansion of present tank arsenal. . . . United Aircraft adds new buildings. . . . **Allocation of steel, replacing priorities system, to enable non-defense industries to do better planning.** . . . OPM 12-cent copper price not altered by Government

(*Turn to page* 198, *please*)

FOR TOTAL VICTORY

Stop ALL Leaks!

Serving the United Nations with dependable gaskets for every application.

STEELBESTOS • TWIN-TYPE STEELBESTOS • KORKOID • SPRINGOID
DELOID • D-G INSULATING MATERIALS • SYNTHETIC COMPOSITIONS

DETROIT GASKET & MFG. CO. • DETROIT, MICH.

(*Continued from page* 196)
purchase at 15 and 16 cents output of three "high cost" Michigan producers. . . . **Wildcat strikes attributed to unions' growing pains, slow up car and defense output.** . . . Franklin Institute awards Vermilye medal to Knudsen. . . . Problems of aircraft manufacture, design and standardization clarified at SAE Pacific Coast meeting. . . . Quote from lead article, "The best defense against a tank is a better tank: The only real offense is the air-tank team."

December 1, 1941

Production of cars and trucks in November estimated at 373,000, marking downward trend; December output to decline to 204,848 cars, 22,000 light trucks, and indeterminate number medium and heavy trucks. . . . February passenger car production quota set at 174,122, a cut of 56.1 per cent. . . . 1942 model year truck output estimated at 800,000 for civilian use. . . **Reported revision of previous metals stocks estimates due to apprehension by Army and Navy of shooting war in Pacific.** . . . OPM orders report as magnesium shortage becomes acute. . . . **Chile, Peru and Mexico copper output at record-breaking figure, but shortage continues. . . . Country-wide investigation of auto replacement parts shortages authorized by Central Motor Transportation Committee; A-3 rating recommended for replacement parts.** . . . NADA moves offices to Washington from Detroit. . . . Truck producers promised more Army orders as present contracts near completion; '42 requirements put at 389,000 units. . . . Yellow Truck has received orders for military units valued at $230,000,000, of which 49,000 have been delivered. . . . Sperry subsidiary, Vickers Inc., to build $8,590,957 plant in Michigan area for aircraft equipment. . . . Recent defense orders to automotive plants over $9,000,000. . . . Rubber consumption up 12.6 per cent in October to 60,418 long tons. . . . Fifteen of 40 items on the agenda of NASC standards approved at annual meeting. . . . **Canada orders "jeeps" from Willys.** . . . Fifteen days' grace on brightwork scrapping granted by OPM; May freeze '42 models, drop de luxe cars and equipment. . . . Detroit to have Aviation Show, Jan. 16-25. . . . **Management-labor harmony grows with defense progress; Chrysler and UAW-CIO sign for workers in tank arsenal.** . . . FTC issues desist order to GM Sales Corp. to discontinue "tieing contracts" made with dealers. . . . U. S. Labor Department issues "overtime" clarification. . . . **Bethlehem closes Seneca Division, Buffalo because of priorities and increasing shortages of steel for civilian industry.** . . . Shipments of automotive castings during October up 11.6 per cent to 5,867,175 units; replacement shipments up 2.5 per cent at 3,756,963. . . . Ontario and Quebec fix scrap iron prices at $23 and $18. . . . November copper demand estimated at 150,000 tons. . . . ASI Show off; MEWA and MEMA plan joint show in Atlantic City in February. . . . **U. S. to inspect parts distributors' books to ascertain compliance under Fair Labor Standards Act.** . . . Week of Nov. 21, showed rise in lost man-hours in defense plants due to strikes. . . . Machine tool shipments in October at $77,200,000; employment up 8 per cent. . . . Reo receives tank destroyer order. . . . Hupp leases space to Chrysler and U. S. Rubber for defense production. . . . Continental has completely revolutionized plant for war output. . . . Base period to figure parts production schedules made optional by Priorities Director, allowing either Jan. 1-June 30 or July 1- Dec. 31.

December 15, 1941

Production of cars and trucks in December not expected to exceed 300,000 vehicles, as manufacturers plan to close down between Dec. 19-24. . . . January production cut to 24.5 per cent of January, 1941. . . . **All-out, $150 billion Victory program predicted to accentuate material shortages.** . . . Except for rubber, automotive industry, using alternate materials, not affected by war with Japan in Pacific; crude rubber stocks in U. S. expected to reach about

(*Turn to page* 200, *please*)

DANLY KWIK-KLAMPS

TOGGLE CLAMPS FOR QUICK, POSITIVE CLAMPING IN ANY POSITION WITH

STANDARD HALF TURN

OR STRAIGHT CLAMPING BAR

WRITE YOUR DANLY BRANCH

DANLY MACHINE SPECIALTIES, INC.

2100 So. 52nd Ave. • Chicago, Ill.

Milwaukee, Wis. Dayton, Ohio Rochester, N. Y.
Long Island City, N. Y. Detroit, Mich. Cleveland, Ohio
Philadelphia, Penna.

Ducommun Metals & Supply Company, Los Angeles; San Francisco

DANLY DIE SETS and DIE MAKERS' SUPPLIES

flick a Finger and a giant goes to Work!

At the touch of a fingertip or toe this almost-human giant goes to work in the production of important aircraft parts. The outstanding feature of this 2,000-ton press is its turret table which meets the exacting demands of planned production sequence.

In addition to maintaining thereby the production speed that is so necessary in wartime, Birdsboro Hydraulic Presses provide economical operation that will help to insure profitable production later on. If yours is a press problem, it pays to consult Birdsboro.

Builders of: **Hydraulic Presses · Steel Mill Equipment · Rolls · Special Machinery · Crushing Machinery**

BIRDSBORO

HYDRAULIC PRESSES

(*Continued from page* 198)

600,000 long tons by Jan. 1. . . . **War effort speed-up cuts industry's idle; UAW-CIO executive committee declares against work stoppage.** . . . OPM gives automobile manufacturers until Dec. 31 to use up brightwork, extending ban. . . . Recent defense orders added to automotive industry total, over $72,600,000. . . . **Canada puts drastic limit on light truck manufacture.** . . . Steel plate initiates allocation program. . . . **OPM conducts hearings on copper production possibilities.** . . . Oldsmobile gets 75-mm. gun order for Army Ordnance Department. . . . P & W aircraft engine deliveries increase. . . . GE begins erection of $25,000,000 supercharger plant. . . . **OPM order halts tire and tube output.** . . . Reorganization of OPM contract distribution announced—Canada limits color shades; country to build up cork supply. . . . **Reasonableness of increase priced for camelback studied by OPA.** . . . Production order on heavy trailers lifted. . . . **Westinghouse engineers suggest lighting in reverse to blind would-be intruders in defense areas.** . . . Lockheed and Willys add manufacturing space. . . . Harrison layoffs increase, due to curtailment schedules.

FOR THE "HEALTH" OF YOUR TIRES

CHECK AIR LOSSES

A thermometer is used to record a patient's temperature changes which are an important indication of health. Likewise, you can use a tire gauge to watch the "health" of your tires.

When one tire loses more air pressure than the others between periods of inflation, it reveals the need for a check-up to find the cause of the leak. Use your Schrader Gauge to discover excessive air losses, as well as to keep tire pressures accurate.

After pressure testing "re-cap" every tire valve with an air-tight Schrader Cap. This plan will lead to substantial savings in tire life, operating and upkeep costs.

Free offer to companies operating fleets. Write for a trial supply of Pressure Record Cards to find out how this plan can help you get the most out of your tires.

A. Schrader's Son, Brooklyn, N. Y.
Division of Scovill Manufacturing Co., Inc.

Schrader

VALVE CORES, VALVE CAPS, TIRE GAUGES

AIR-TIGHT VALVES AND ACCURATE PRESSURES SAVE TIRES

January 1, 1942

Production of cars and trucks in December approximately 292,000 vehicles; 1941 estimated industry's second greatest production year. . . . Great West Coast plane plants show great expansion, almost overnight. . . . **Anti-aircraft guns, ammunition, explosives come first on OPM change of order of production priorities; bomber production, high on list, rests heavily on Ford.** . . . OPA fixes price on reclaimed rubber. . . . Machine tool makers pledge OPM 50 to 100 per cent increase over previous defense needs. . . . **Steel companies released from non-defense contracts.** . . . Government takes over control of tin importation. . . . SAE to meet Jan. 12-16 in Detroit. . . . Tire and tube exports regulated by Economic Defense Board. . . . Mack Truck plans increased production. . . . **C. A. Musselman, chairman, National Defense Committee of Associated Business Papers urges employers to adopt Defense Saving Payroll Allotment Plan to provide funds for defense, put brake on inflation, and stimulate post-war buying.** . . . **Brightwork ban in Canada effective Jan. 15.** . . . OPM order restricts melting alloyed metals except to fill orders with A-10 rating or higher. . . . **Congress urged to take immediate action in establishing guayule farms in West.** . . . Ordnance Department approves plastic pistol grips. . . . High-octane fuel production to be tripled. . . . International Nickel raises production rate many million pounds annually. . . . **Michigan Commission and UAW-CIO estimate unemployment 250,000 to 300,000 as auto production slows.** . . . Sixty firms aid Ford in tooling bomber plant. . . . **Tire ration plan to limit non-essential use; no more than two months' supply of finished tires at current consumption rate.** . . . **NSPA emphasizes importance of maintaining spare parts business through war period.** . . . Canada to have new magnesium plant. . . . **Canadian auto exports increase 206 per cent.** . . . Chrysler gets large order for army trucks from Canadian Government. . . . GM drops income security plan. . . . Sterling expands plant for manufacture of engines for British torpedo boats. . . . Republic inaugurates a three-shift, seven-day week. . . . Quote from lead article, **"While we are engaging in this intense war production, let us preserve the principles of our free enterprise system and especially the independent initiative of the individual."**—K. T. Keller.

January 15, 1942

Production of cars and trucks in January was cut by OPM, after Pearl Harbor, to 102,424 units; later put at 204,848 to enable makers to use stocks of fabricated parts, but shortages of certain materials caused revision of schedules. . . . **Oldsmobile puts two men on each job in an on-the-job training plan to quicken shift to wartime production.** . . . Detroit schools training

(*Turn to page* 202, *please*)

A MESSAGE TO THE AUTOMOTIVE INDUSTRY

A year ago these Bullard Mult-Au-Matics were turning out automotive parts in a well known Detroit plant. Today, with minor tooling changes, they are machining shells. Some day they will be back on automotive parts again.

As the automotive industry shifts to armament production, it is receiving significant proof that the versatility of Bullard Mult-Au-Matics on any kind of job within their capacity makes for fast, low-cost production. This will be remembered when peace comes.

BULLARD

THE BULLARD COMPANY

BRIDGEPORT, CONNECTICUT

(*Continued from page* 200)

17,000 men on 24-hour basis for defense work. . . . December bonus payments take place of '42 vacations; premiums for week-end work under discussion. . . . **GM organizes a War Emergency Committee.** . . . Buick and Studebaker speed plane parts output. . . . Steel plants turn to full production of war materials, released from passenger car supply. . . . Goodrich offers machine capable of reclaiming 34,000,000 pounds of rubber annually. . . . Price Administrator to address NADA meeting in Chicago, Jan. 20. . . . Goodrich discovers many uses for synthetic rubber product, Ameripol. . . . **New OPM February quotas permit manufacture in month of 53,425 trucks, 1065 buses.** . . . OPA sets brass prices. . . . **Army to provide training in recapping for enlisted men.** . . . ASTE told little plastics left for civilian industry. . . . World tin production for first '41 months estimated 209,500 long tons. . . . Koppers acquires rights to propeller manufacturer from Everell Propeller Corp. . . . **N. Y. Journal of Commerce suggests "Victory Market Place" to bring together owners of idle equipment and holders of war orders.** . . . Republic last quarter deliveries up 700 per cent over first quarter. . . . **Four-shift operation will solve problem of 168-hr. work-week, according to Acting Administrator Snyder of the Wage and Hour Division.** . . . Federal approval of highway projects to be restricted to those essential in the national defense. . . . Halt in truck production hits "drive-away" truckers. . . . **No spares as part of original equipment allowed in Canada.** . . . Quote from lead article, "Now engaged in the greatest model change-over in its history, the automobile industry finds itself as one of the prime factors in the United States industrial economy upon which President Roosevelt is banking to produce 60,000 airplanes, 45,000 tanks and 20,000 anti-aircraft guns in 1942 to help rid the world of Hitlerism."

37 MM. A. P. PROJECTILE
SOLDER WIPING MACHINE

CAPACITY 1200 PER HOUR

THIS machine assembles shot and cap with a wiped solder joint, excess solder being removed by a brush. Three operators are used—one to load the caps, one the shot, and one to remove the completed assemblies. Operation is continuous and automatic, the wiping action providing a firm joint with exclusion of all air bubbles and oxidation. Specifications call for approximately six feet by seven feet of floor area, and two motors totalling 5 horsepower. Further details will be furnished promptly on request.

We specialize in the design and manufacture of distinctive production machinery and are seeking opportunities to help you obtain greater production at lower unit cost.

REHNBERG R-J JACOBSON

REHNBERG-JACOBSON MFG. CO.
Special Machinery
2137 KISHWAUKEE ST. • ROCKFORD, ILLINOIS

February 1, 1942

Production of cars and trucks in January, the final month of passenger car and civilian truck manufacture, an estimated total of 275,000 units rolled off assembly lines. . . . **February production of medium and heavy trucks for civilian use is set at 53,435 units.** . . . Automotive Council for War Production makes plans for changeover; nine subdivisions aid in pooling equipment, ideas. . . . **Chevrolet, Hudson and others offer plan through dealers to keep owners' cars conditioned for duration.** . . . Priorities Section WPB make nation-wide, plant-by-plant survey. . . . War orders to automotive industry reach $3,459,000,000. . . . Scrap dealers held partly responsible for shortage. . . . Secondary nickel control tightened; after April 1, the metal is banned in long list of civilian-use products. . . . Price ceiling set for primary and secondary cadmium. . . . **NADA petitions Small Business Committee to aid car dealers.** . . . Henderson announces no battery or plug rationing. . . . **Curtailment boosts Michigan compensation rolls 137,000 in month; curtailment unemployment reported at 260,000 with additional 50,000 in prospect. . . . Half million auto and truck salesmen idle.** Army experiments with cast-iron pistons to conserve aluminum. . . . Stewart-Warner on 24-hr. schedule in four plants. . . . Petroleum price schedule announced due. . . . Platinum use in industry increasing. . . . Hyatt celebrates 50th anniversary. . . . **WPB conducts clinics to show small manufacturers how to convert plants.** . . . Defense keynotes SAE Detroit meeting. . . . **Survey shows average annual mileage of farm cars to be 5750; rural cars, 8120; urban 8780. . . . Fifteen of every 100 cars in use are on farms.** . . . Quote from lead article, "Dig out the old equipment in cellars and warehouses; dust them off and put them to work."

February 15, 1942

Production of passenger cars during first ten days of February estimated at 15,000 units; total production for first half, approximated 62,000 units. . . . Military vehicle production now at monthly peak. . . . Chrysler tearing out automotive facilities; 11,081 of 19,700

(*Turn to page* 204, *please*)

SPEED UP WAR PRODUCTION!

EQUIP ALL MACHINES WITH LINCOLN CENTRO-MATIC LUBRICATING SYSTEMS

1. Large punch press with Lincoln Centro-Matic System—push button control lubricant pump. (Model 1840)
2. Small shears with Lincoln Centro-Matic System—hand operated lubricant pump. (Model 1805)
3. Massive press with Lincoln Centro-Matic System—full automatic control lubricant pump. (Model 1787)

FULL speed ahead—7 days and nights a week—on war production is the aim of all industry today. To keep production rolling at top speed, proper lubrication of bearings on all machinery and mechanical equipment is a factor of vital importance.

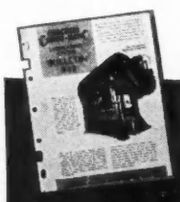
You can depend on Lincoln Centro-Matic Lubricating Systems to provide fast, positive and economical lubrication of all bearings and minimize shut-down time due to bearing failure. The system is easy to install and consists of a number of Centro-Matic injectors,—one for each bearing, each individually adjusted to deliver the required amount of lubricant, under pressure, to the bearing. Lubricant is pumped from a central pumping unit, which can be either hand-operated, semi-automatic or entirely automatic with time clock control.

The Lincoln Centro-Matic System has almost no limitations—it can be applied to all types of machinery regardless of the number of bearings to be lubricated.

SEND FOR FREE COPY OF BULLETIN 888

or send us specifications of the machinery to be lubricated and our engineers will gladly make recommendations. No obligation.

142-1

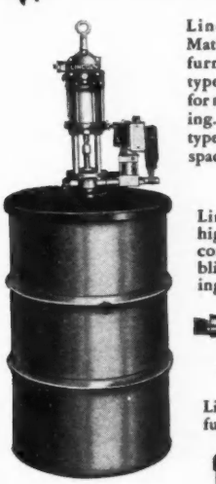


LINCOLN ENGINEERING COMPANY

Pioneer Builders of Engineered Lubricating Equipment

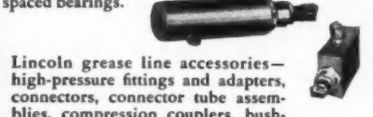
ST. LOUIS, MISSOURI

SIMPLE TO INSTALL



Lincoln Model 1787 Air motor operated, 400-lb. drum pump. Pumps lubricant direct from original refinery container and is full automatic with time clock control.

Lincoln Centro-Matic injectors are furnished in two types—block type for manifold grouping. Cylindrical type for widely spaced bearings.



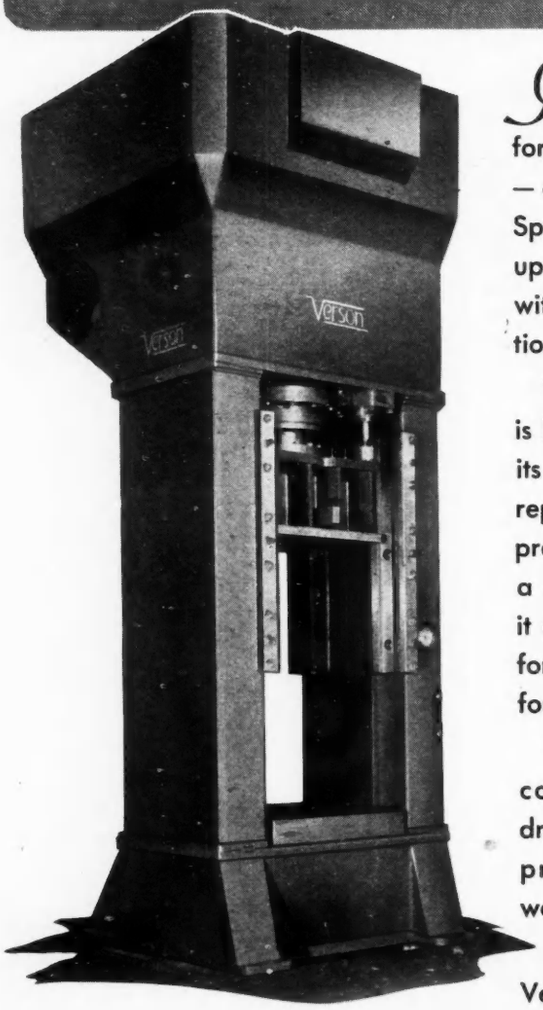
Lincoln grease line accessories—high-pressure fittings and adapters, connectors, connector tube assemblies, compression couplers, bushings and lubricant hose.

Lincoln Model 1840 fully-automatic electric Lubrigun, 30-lb. capacity.

Lincoln Model 1805, Manually operated Centro-Matic Pump, 2-lb. capacity.

(*Continued from page 202*)
machine tools being used or allocated to war production. . . . Chrysler and GM plan huge war plants for aircraft engine parts production. . . . International Harvester has $80,000,000 tank contract. . . . **Automotive branch of WPB eventually may number 100 men.** . . . GM Institute starts new class; Trained 15,909 in '41. . . . U. S. Rubber buys Georgia plant. . . . AEA cancels Detroit meeting. . . . **Better scrap collection methods up steel output; AI & SI announce four new types of alloy steels; new furnaces under construction by one producer to raise pig iron output 1,700,000 tons annually.** . . . New economies ease tin problems. . . . Cobalt placed under full priority control. . . . Disston offers conservation control plan to workers. . . . **UAW-CIO to press GM for union shop and general $1-per-day increase, based on rising living costs.** . . . ACWP extends listing to all machine tools in the industry. . . . **GM employes' earnings up in '41 at all-time high of $500,422,165.** . . . Army to set up 10 recapping stations. . . . **Rationing order covers new car distribution; cars ordered before Jan. 1, '42 to be distributed by local boards to properly certified persons.** . . . Ford terminates group insurance plan for 125,000 employees, effective Feb. 28. . . . **Survey of 5000 dealers reveals large quantity of tools suitable to war production.** . . . Armed forces adopt rubber-saving plan; modified tire for non-combat use to save 43,000 long tons in next two years. . . . **New rationing regulations on recapped and retreaded tires, effective Feb. 19, to save 25,000 tons of rubber annually; 15 per cent reduction of rubber in tires and tubes to save additional 10,000 tons. . . . Goodrich develops 11 combination sizes for truck tires to do work of 28 sizes.** . . . Buick, Hudson and other plants inaugurate car-conditioning and maintenance services through dealer organizations. . . . Institute of Aeronautical Science holds tenth annual meeting in New York. . . . President's plane plan demands production of one every 8 minutes in '42; one every 4 minutes in '43. . . . Quote from lead article, "It takes months—six or nine months or even a year—for preparation, for making the tools; but once this has been done the mass production plant can get out the work in tremendous quantities."

Nosing 105 mm SHELL FORGINGS



IF YOU produce shell forgings or machine them — a Verson Hydraulic Speed Press will set you up for top production — with better than inspection-passing quality.

This Verson Hydraulic is built entirely of steel—its engineering design represents the ultimate in press manufacture. With a capacity of 350 tons, it easily handles 105 mm forgings cold or 155 mm forgings hot.

Verson manufactures a complete line of hydraulic and mechanical presses used in metalworking for defense.

Bring your problem to Verson Engineers.

VERSON ALLSTEEL PRESS CO.
9307 South Kenwood Avenue • Chicago, Illinois
POWER PRESSES • HYDRAULIC PRESSES • CLUTCHES
FORGING PRESSES • PRESS BRAKES • DIE CUSHIONS

Doehler Awarded Navy "E"

The Doehler Die Casting Company has been awarded the Navy "E" pennant and the Bureau of Ordnance flag in recognition of its production of ordnance material for the Navy. The company is the first in the die casting industry to be so honored.

New Factory Branch

The Frederick Post Co., manufacturer of sensitized papers and other drafting and engineering materials, has opened a new factory branch in Houston, Tex.

40 YEARS AGO

Nice, France, February 3.

EDITOR, *Horseless Age:*

I have been much interested in the various articles in your journal on the flexibility of the gas engine as compared with that of the steam engine, and I am convinced that the claim of the want of flexibility in the former is largely due to experience with engines governed on the hit and miss principle.

Some few years since I satisfied myself that in a gas engine ignited by the electric spark the regulation would be more perfect and the flexibility much greater if it was governed by throttling the gas, and began the construction of an automobile engine to settle the question. . . .

There is no troube in running my engine from a minimum of 300 to a maximum of 1000 turns by merely throttling the gas, and thus reducing the speed of the carriage to less than a third of its greatest speed, which, it appears to me, shows a very considerable amount of flexibility.

From *The Horseless Age*, Feb., 1902.

First Steps Toward Subcontracting

(*Continued from page* 61)

***CHICAGO**
Thos. S. McEwan, Mgr., 20 N. Wacker Drive
DECATUR
Eugene W. Bassett, Actg. Mgr., 132 So. Water St.
PEORIA
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SPRINGFIELD
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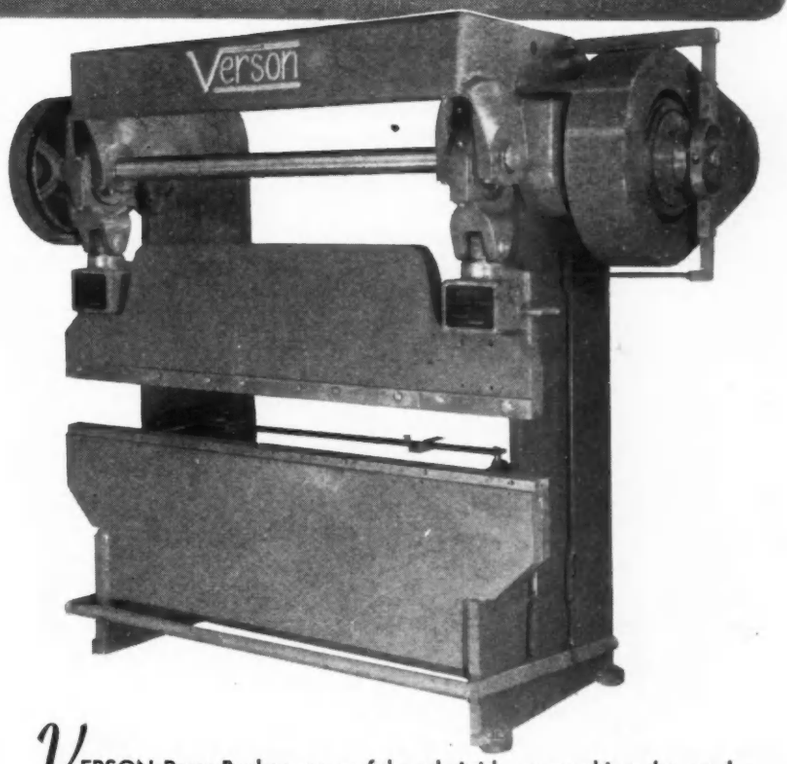
(*Turn to page* 206, *please*)

Straightening ARMOR PLATE



VERSON Press Brakes, powerful and rigid, are working day and night on many types of armament work. One tough job they take in their stride is straightening armor plate—quickly and economically.

One plant alone has over 110 units working full speed ahead and without tiring, for they are ruggedly built to take it.

Verson Press Brakes like the one above will handle up to ⅜" plate continuously, while larger models have capacity up to 3" plate.

How can you use Verson Brakes to help speed your production? Ask a Verson Engineer.

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9307 South Kenwood Avenue • Chicago, Illinois
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Use the PRECISIONAIRE

to Gage Internal Diameters

Gun Barrels—All Calibers
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•
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Piston Pin Holes
•
Step Holes—Several Diameters
•
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Deep Blind Holes—to Within 1/16" of the Bottom

Work Still on Boring Machine or Grinder
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Carburetor Bodies and Valve Sleeves
•
Engine Cylinders and Liners
•
Parts Too Heavy to Be Brought to the Gage
•
Bores Too Small to Be Checked Otherwise
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Highly Finished Bores Vulnerable to Scratching

The Sheffield Precisionaire is extremely fast in action, has the highest degree of accuracy in both process and final inspection—may be used either as a limit comparator for checking tolerance or as an indicating gage for classification of parts. It gives an accurate check not only of internal diameter, but bell mouth, out-of-round and average diameter.

Write for descriptive folder.

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Formerly—The Sheffield Gage Corp.
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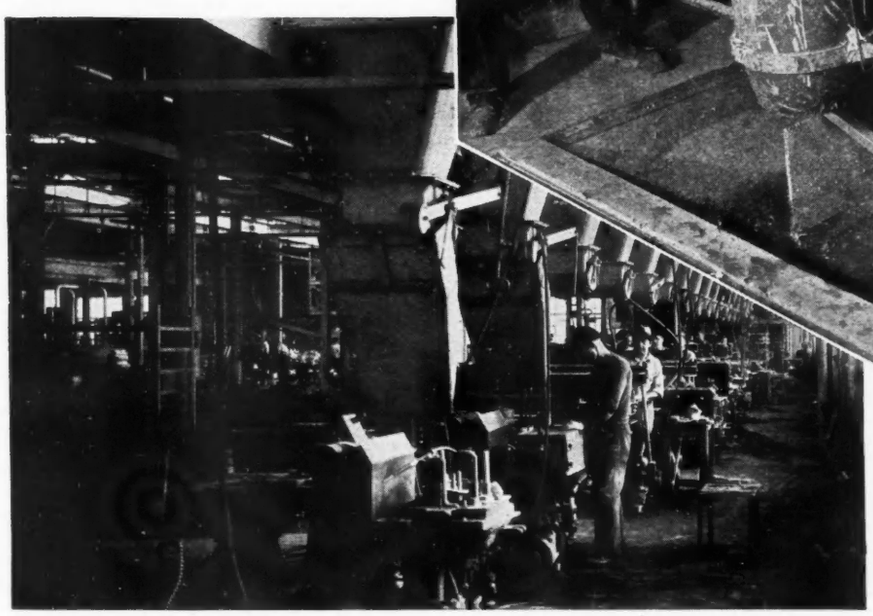
(Turn to page 208, please)

RELIEVING OUR FIGHTING FORCES of Useless Weight



* The above illustration shows molten aluminum being poured from a 450-lb. tilting type furnace, in the new Permite foundry.

* At left is a view of a long line of sand molding machines in the new foundry. With this latest foundry unit in operation, original production capacity has been more than trebled.

AS the war clouds first began to gather, Aluminum Industries inaugurated a vast plant expansion program to meet the growing need for the light weight and extra strength provided by PERMITE Aluminum and Magnesium Alloy Castings.

Now, from long production lines in these new, modern plants, aluminum and magnesium alloy castings of varied types and sizes, are moving out in tremendous quantities for assembly in bombers, tanks, trucks, ships and other war equipment.

Permite Castings are produced by the sand cast, semi-permanent mold and permanent mold processes in all sizes, from the smallest to the largest. Strict laboratory control, modern equipment and years of pioneering experience insure the uniformly high quality of every Permite Casting.

Defense manufacturers are invited to consult with our engineering staff regarding their castings requirements.

ALUMINUM INDUSTRIES, Inc., Cincinnati, Ohio

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PERMITE *Aluminum AND Magnesium* ALLOY **CASTINGS**

(*Continued from page 206*)

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A. J. Langford, Mgr., Fidelity Bldg.
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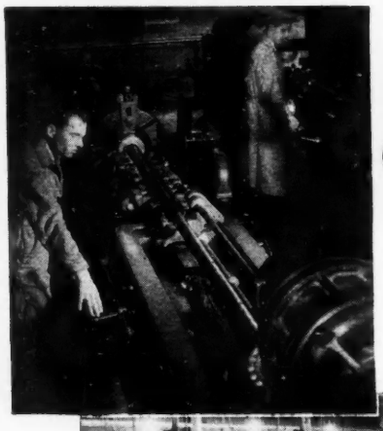
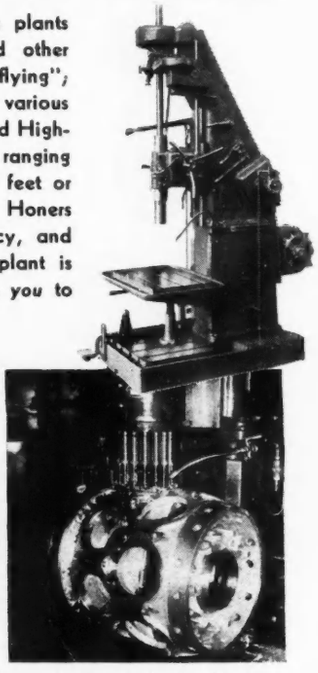
(*Turn to page 210, please*)

How BARNESDRIL Helps To "Keep 'Em Flying"

BARNESDRIL Honers and Drillers are widely used in plants building airplanes, trucks, tractors, tanks, guns and other war materiel; gasoline and Diesel engines to "keep 'em flying"; ordnance to keep 'em shooting. Our Drillers are built in various sizes up to 4" drill capacity or equivalent; in Gangs and High-Production Units . . . our Honers for finishing holes ranging in diameter from 0.300" upward, and in length to 75 feet or more; also for external honing. These Drillers and Honers are demonstrating high productive capacity, accuracy, and durability in 24-hour service . . . and our enlarged plant is producing more to capacity likewise. Can we help *you* to "Keep 'Em Flying"?



↓ BARNESDRIL Horizontal Honers work on barrels for rapid-fire guns, and cannon.



DRILLERS BARNESDRIL HONERS BARNES DRILL CO

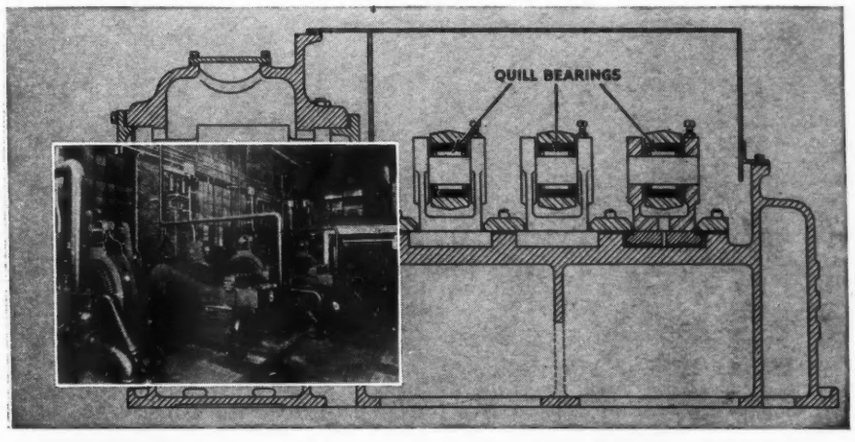
No. 262 Sliding Head. Popular for Army, Navy and Aircraft work. Close-up shows it, with multiple-spindle head, drilling airplane engine crankcase. ↑

↑ Partial view of BARNESDRIL Vertical Honers in aircraft engine plant.

Barnes Drill Co. 817-847 CHESTNUT ST. ROCKFORD ILLINOIS, U.S.A.

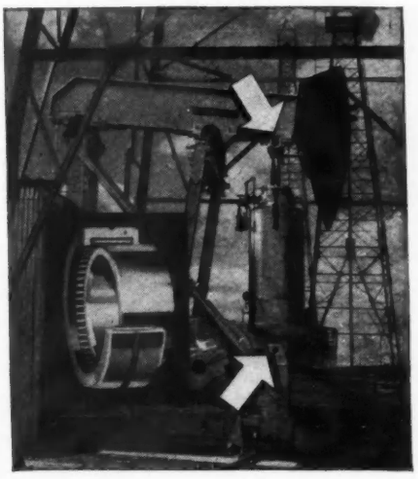
IN THE NEWS
WITH BANTAM BEARINGS

3-INCH ANTI-AIRCRAFT GUNS are true precision machines that must operate with extreme accuracy and complete dependability. In the design and construction of many of America's new weapons, the skill and experience of Bantam engineers are playing an important part. Bantam's broad background in the design and application of every major type of anti-friction bearing aids in the solution of new and unusual bearing problems.

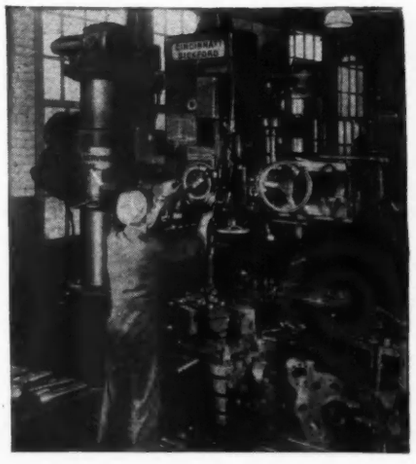


LONG, DEPENDABLE LIFE is essential in this application of Bantam Quill Bearings on the wrist pins of Baldwin Southwark Triplex Pumps. The pumps, shown in inset, are used to furnish high-pressure water for a large shell-forging plant, and deliver 450 gallons per minute at a working pressure of 1,500 pounds per square inch. Load application ranges from zero to maximum 95 times a minute. The Quill Bearings help keep maintenance costs down in this exacting service. For further information on this compact, high-capacity bearing, write for Bulletin C-104.

BANTAM'S ENGINEERING COOPERATION is especially valuable in meeting new and unusual requirements. Bantam makes every major type of anti-friction bearing—straight roller, tapered roller, needle, and ball. Bantam engineers aid in the selection of the type that best suits your application—or design special bearings in sizes and types that meet out-of-the-ordinary service requirements. If you have a difficult bearing problem, TURN TO BANTAM.



IN THE NATION'S OIL FIELDS, pumping units are working 'round the clock to meet wartime needs for this vital fluid. Leading manufacturers of pumpers have found that Bantam Quill Bearings contribute to efficient operation, reduce need for maintenance attention. Arrows on photograph show location of Quill Bearings on The Parkersburg Rig & Reel Company's 66-HK pumping unit—an application typical of the many oil field uses for the Quill Bearing.



MACHINE TOOLS THAT MAKE MACHINE TOOLS take on new importance in speeding the nation's wartime production. These Super Service Radials built by The Cincinnati Bickford Tool Co. are working 24 hours a day, 7 days a week, helping to turn out turret lathes. Bantam Quill Bearings in these machines facilitate travel of the head along the arm—another instance of the adaptability of these compact bearings.

BANTAM BEARINGS

STRAIGHT ROLLER • TAPERED ROLLER • NEEDLE • BALL

BANTAM BEARINGS CORPORATION • SOUTH BEND • INDIANA

(*Continued from page 208*)

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SUBCONTRACTING EXHIBITS

Subcontracting exhibits of the Contract Distribution Branch, War Production Board, are now open or scheduled to open by February 15 at the following addresses:

ST. LOUIS, MO.
Boatman's Bank Bldg., Locust St. & Broadway

NEW YORK CITY
Chanin Bldg., 122 E. 42nd St.

PHILADELPHIA
Broad Street Station Bldg., 1617 Pennsylvania Blvd.

DETROIT, MICH.
Boulevard Bldg., 7310 Woodward

CHICAGO, ILL.
Civic Opera Bldg., 20 North Wacker Drive

CLEVELAND, OHIO
Union Commerce Bldg., E. 9th & Chester Ave.

KANSAS CITY
Mutual State Bldg.

MEMPHIS, TENN.
18th Floor, Sterick Bldg.

NEW ORLEANS
Canal Building

LOS ANGELES
Western Pacific Bldg., 1031 S. Broadway

SAN FRANCISCO
Whitcomb Hotel

The following subcontracting exhibits are scheduled to be in operation by the end of February:

ATLANTA, GA.
Suite 150, Hurt Bldg.

BOSTON, MASS.
Court Street Branch, First Nat'l Bank

NEWARK, N. J.
4th Floor, Indemnity Bldg., 20 Washington Place

BUFFALO, N. Y.
White Bldg.

Steel Cartridge Cases

Steel cartridge cases for artillery shells, varying in size from 20 to 105 mm. are being produced on developmental orders by several manufacturing concerns, the War Department announced. The use of steel for cartridge cases will help alleviate the estimated shortage of brass, the traditional cartridge case material. Extensive firing tests have shown that steel cases can be used successfully.

Order Limits Steel Sales

Alloy steel remaining in inventories of the automobile companies as a result of the cessation of automobile production may be sold only on orders bearing a preference rating of A-1-k or higher. All other steel and steel products may be sold only on orders with a rating of A-3 or higher, according to the Director of Industry Operations of the WPB.

Avery Builds Tractors

B. F. Avery & Sons Co., of Louisville, Ky., farm implement producer, will manufacture tractors formerly made for the company by the Cleveland Tractor Co., which is heavily engaged in war work. Avery also has acquired the defunct General Implement Co., of Liberty, Ind. Outlets for Avery-built tractors will include Montgomery, Ward & Co.

Hercules Adds Solvent Plant

Hercules Powder Co. is constructing a new unit at its Brunswick, Ga., naval stores plant for the manufacture of "Tarol" and "Solvenol," its rubber solvents and plasticizers.

GAP GAGE GRINDER...

Plants now tooling for, or working on, war materiel can use this machine to great advantage for making gap and snap gages, and for rejuvenating existing gages. It has been specially designed for such service, with high precision construction throughout, and is so simple to operate that an ordinary mechanic can be trained as a capable gage grinder hand in a few hours time. *On high priorities, prompt delivery is assured.* Write for circular giving complete specifications.

NY-LINT TOOL AND MFG. CO.

NY-LINT TOOL & MANUFACTURING CO.
1823 16th AVE., ROCKFORD, ILL.